MARCH 18, 1996 VOLUME 13, NUMBER 12

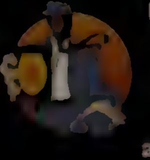
Network World

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

NetWorld+Interop
PLANNER
Our guide to the show's hot spots. Page 44.

Special Report

Crime: It's just a hot link away



By Ellen Messmer

For years, an Austin, Texas-based crime ring posed as a legitimate business but secretly used the Internet and an elaborate phone scam to sell upward of a million dollars in stolen goods.

The Austin police department and federal investigators finally busted this gang, which disguised itself as Berry Associates. Law enforcement officials found that the gang used public Usenet advertising and private bulletin boards to sell goods stolen from telephone substations and area manufacturers.

Unfortunately, the Berry Associates scam is just part of what Austin-area manufactur-

See Crime, *page 60*

KEEPING OUT OF TROUBLE

Daniel Barrett, author of *Bandits on the Information Superhighway*, advises:

- Corporations placing classified ads should use business-focused biz.marketplace newsgroups, not consumer-oriented newsgroups such as misc.forsale
- When buying, consider using a middleman to hold the money until the merchandise is delivered. The Usenet Marketplace FAQ has more information at www.phoenix.net

When victimized:

- If you cannot resolve the problem, contact the Federal Trade Commission, the U.S District Attorney General or the U.S Postal Service.

It may be immature, but fans claim Java's no jive

But will it be the basis for distributed 'Net apps?

HOW *hot* IS IT?

By John Cox

Application developers working with Sun Microsystems, Inc.'s Java language report that it delivers most of what Sun promises. But whether Java will succeed as a foundation for distributed Internet-based applications remains to be seen.

Java is letting developers extend application functions, not just views of documents, out to desktop computers via the Internet and World-Wide Web.

But the other half of this equation — robust server applications linked via middleware with the clients into true distributed systems — is still unproven.

On the plus side, developers said:

■ Java applications have been written on Solaris and ported to Microsoft Corp. Windows NT and Windows 95 in production

See Java, *page 14*

"Java Joust" generates hot debate

Java proponents, opponents and other interested parties made our Network World Fusion on-line conference a lively forum for discussing Sun's much-talked-about programming language for Internet applications. See story, page 14.

Giants back voice over 'Net

By Joanie Wexler

The group of small phone companies petitioning the FCC to ban phone calls over the 'Net isn't fighting just a bunch of Internet start-ups anymore.

Intel Corp., Microsoft Corp. and 100 or so corporate allies last week threw their weight behind the emerging market with a plan to let different Internet phone products work together.

The effort could have the small phone companies in America's Carriers Telecommunication Association (ACTA) realizing their worst nightmare: millions of people talking over the Internet to avoid long-distance charges. ACTA complained to the Federal Communications Commission that Internet phone service is not fair since the companies providing the software and services are not regulated like phone companies (*NW*, March 11, page 6).

Some observers have said ACTA members were overreact-

See Voice over 'Net, *page 12*

ONLINE

More info on Network World Fusion, including:

- Links to existing Internet telephone software
- Papers on the protocols Intel and Microsoft plan to bundle into their spec
- A list of the companies participating in the specification effort

Select News+ then Front Page.

Fusion

NEWSPAPER $5.00

Access Network World Fusion using the number in yellow. See page 5 for details.

IBM battles BackOffice

Big Blue fires off its own server application bundles that target databases, network management and the Internet.

By Michael Cooney

Austin, Texas

The Eagle has landed.

After more than a year of speculation, IBM next week will unveil a series of server software bundles aimed at regaining the applications high ground and putting Microsoft Corp.'s BackOffice suite in its place.

IBM's seven-member Software Server family, formerly code-named Project Eagle, will run on OS/2, AIX and even Microsoft's Windows NT operating system.

And while Microsoft's BackOffice put together a variety of applications into one bundle, IBM has different packages for different uses — everything from the Internet to databases.

Other bundles include systems management, directory and security, transactions and communications.

Besides trying to beat back Microsoft, IBM is looking to simplify the adoption of client/server products and let preconfigured working software suites combine more easily throughout the enterprise. The IBM packages only include applications software, but hardware and operating systems could be added down the road, according to sources.

See IBM, *page 61*

Big Blue blends SNA/LAN data

By Michael Cooney

Anaheim, Calif.

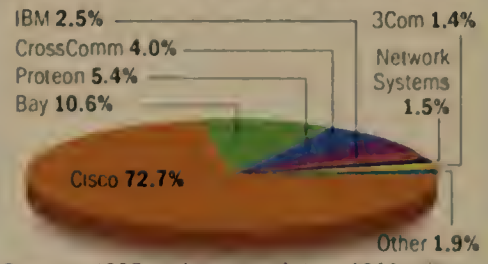
IBM next week will beef up its line of LAN and SNA traffic concentrators, providing customers with what the company says is an even better alternative to branch office routers.

The company will unveil a new edition of its 2217 Nways Multiprotocol

See Big Blue, *page 61*

LONG WAY TO GO

IBM has some catching up to do in the fast-growing market for SNA/LAN integration products.



Based on 1995 total revenue of about $900 million

SOURCE: IDC, FRAMINGHAM, MASS.

Digital ClearVISN to focus on solving management mess

By Jodi Cohen

Call it stepMOM.

Three years after killing off Polycenter Framework — a VAX-centric manager of managers (MOM) — Digital Equipment Corp. this week will unveil plans for a multivendor management suite that goes in another direction. It is designed to let firms more easily manage multivendor nets by eliminating the need for individual element managers.

Digital is partnering with StonyBrook Software to build

See Digital, *page 59*

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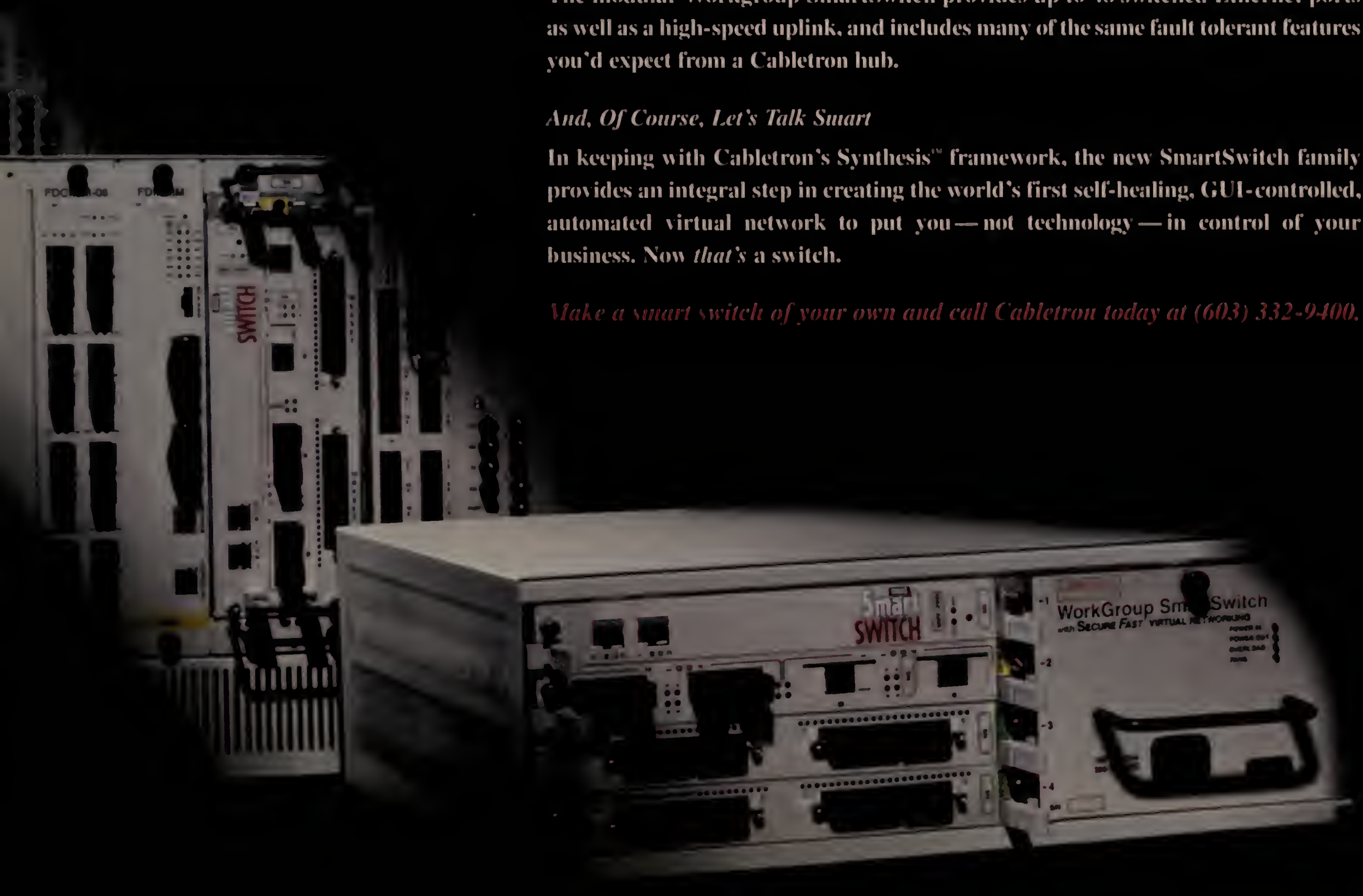

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Contents

News

6 **Global network operators** say they're committed to public Notes service.

8 **Cisco's got SNA by the tail** and won't let go.

8 **Microsoft brings Internet war** to the desktop.

10 **Lack of System 11 support** could hurt Sybase.

12 **Microcom, Motorola and Shiva** separately roll out new tools to ease ISDN connectivity.

12 **Sun Microsystems to announce** new Web-enhanced products.

61 **Telemedicine report stirs up** industry leaders' doubts about broad universal-service subsidy for health care providers.

AT&T Bell Labs' *Schonfeld helped build the world's largest NetWare net. Page 10.*

WANs & Internetworking

17 **UUNET offers** inexpensive multimegabit Internet access services.

17 **Microsoft lets** PPP users access the LAN via the Internet.

17 **Users applaud** Cabletron/Seagate management integration.

Local Networks

21 **Vendors to put on** a hub and switch show at Interop.

21 **LANshark uses show** to intro software to control fax costs.

Client/Server Applications

25 **Documentum, Uniplex** revise their document management systems.

25 **New tool kit release** blends different objects.

25 **Lotus reshuffles** organization to better focus on its core products.

SPECIAL FOCUS

Notes development

Lotus is readying more sophisticated development tools, but customers seem to be getting by just fine for now. See page 30.

Electronic Commerce

31 **Future Labs puts** free conference center on World-Wide Web.

31 **News syndicator** receives a new lease on the Web.

Technology Update

35 **Recent version** of Desktop Management Interface specification allows users to remotely manage computers.

NetWorld+Interop 96 Preview

Take our advice on the key sessions and sights to hit at this year's show. Page 44.

NETWORLD INTEROP PREVIEW

Opinions

20 **Scott Bradner** claims reports of routers' death are premature.

24 **Dave Kearns** says it's time to check your software licenses.

24 **Skip MacAskill and Melinda Le Baron** find the workgroup LAN is where the action is.

26 **Daniel Blum** ponders the meaning of life for Notes after Network Notes' death.

36 **Editorial:** Privacy policies are for your own good.

36 **Anura Gurugé** believes central office FRADs are a quick fix in multiprotocol networking.

37 **Douglas Welch** says not to worry — indecency laws won't mean the end of the Internet.

62 **Dave Buerger:** Oh, hubris! Microsoft makes play for Internet guardianship.

62 **Mark Gibbs:** Are you a Geek god? Find out by taking this self-examination.

NetworkWorld PC WORLD
SERVER TEST SERIES
Page 40.

Network Help Desk. *Page 35.*

Message queue. Letters from our readers. *Page 37.*

Editorial and advertiser indexes. *Page 58.*

NetworkWorld's *Mission: To provide news and analysis that help network IS professionals deliver the network computing infrastructure and distributed applications required to meet evolving business needs.*

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This Week

News

The Front Page:

Crime: See what the other side is up to; follow links to sites that show you how to break the law.

Java: You'll find an extensive list of Java links, from primers and tool kits to sample applets and discussions.

Network management: Want to brush up on network management concepts? Look no further than Fusion for a comprehensive overview of the subject.

The Technical Sections:

Collaboration: See what collaborative tools are available for download or tryouts on the Internet, in Electronic Commerce.

- **Universal service:** Should basic phone service include ISDN? Download FCC rulings and reports on the future of universal telephone access, in WANs & Internetworking.

Web servers: Download draft specifications for getting document management components to talk to each other, in Client/Server Applications.

- **Ethernet:** Thinking of upgrading to fast Ethernet? Look for primers and guides, in Local Networks.

Forum

Debate the Communications Decency Act with a panel of experts. Read their comments, then let fly with your own.

this week's pick

Pretty Good Privacy is encryption for the rest of us. But it has not been the easiest thing to use. The PGP Resources Page provides numerous links on the topic, along with free and shareware Windows interfaces that make PGP as simple to use as any other Windows app. http://netaccess.on.ca/ugali/crypt/index.html.

HOW TO GET ON TO NETWORK WORLD FUSION

At the welcome screen, click on First Visit and follow the instructions. Subscribers, keep your NWF number – highlighted on the front cover's mailing label – handy during registration. Non-subscribers must fill out an on-line registration form.

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CONFERENCE PICK

HOT TOPIC

Join Daniel Blum on-line. Read his Shared Logic columns, then add your opinion.

Select Forum, Columnists then Blum.Forum.

News briefs, March 18, 1996

'Net negotiations

■ The splash Novell, Inc. will make with its big Internet announcement at the Brainshare technical conference this week may be smaller than company officials had hoped for. Negotiations on a multilayered deal with Netscape Communications Corp. have apparently stalled, delaying an announcement until later this spring. However, Novell plans to announce at the show a deal with SunSoft, Inc. to add Java support to NetWare as well as a licensing agreement with Open Market, Inc. under which Novell will build security and transaction processing technology into Novell's Web products.

Hell hath frozen over

■ Microsoft Corp. last week released to manufacturing its long-awaited and delayed messaging/integrated groupware product, Exchange Server, according to a source close to the company. That means the product could be boxed and ready to go by late this week, well in time for Microsoft Chairman and Chief Executive Officer Bill Gates' April 2 launch of Exchange at NetWorld+Interop 96 in Las Vegas. A dozen or so of the company's patient early adopters got the royal treatment, flying in to Redmond, Wash., last week for a party to celebrate the landmark birth of the "baby" that endured a six-year gestation period.

Putting ATM to the test

■ Digital Technology of Burlington, Mass., next month will roll out CellView 100, a PC-based Asynchronous Transfer Mode testing tool. CellView captures ATM net traffic at full OC-3 speeds and displays cells on-screen so that users can diagnose net problems in real time. CellView will be available in April starting at $14,995.

Management gurus

■ Two small network management companies next week will attempt to be heard above the casino din when they show their product hands at NetWorld+Interop 96. StonyBrook Software will lay down WANServices Manager, an enhancement to its Windows-based RouterManager/Autobahn application for automated monitoring of multivendor routers, bridges and switches. WANServices Manager allows users to manage public WAN services, such as frame relay, ISDN and X.25, as a single entity. Separately, start-up ImageNet, Ltd. will put its money behind Cane, a Windows NT-based application that enables network managers to evaluate the validity of network design.

NETWORLD+INTEROP PREVIEW

Image makeover for Lotus

■ Lotus Development Corp. of Cambridge, Mass., will announce Version 4.0 of Lotus Notes: Document Imaging at the AIIM '96 imaging conference. The 32-bit software will be better integrated with Notes, taking advantage of its single-copy object store, and will play up fax capabilities.

Pentium Pro server on tap in Germany

■ IBM last week became the first major player to debut a Pentium Pro-based server. Showcased at the CeBIT show in Germany, the new IBM PC Server 704 features as many as four 166-MHz processors with 512K bytes of Level 2 cache, a storage capability of over 25G bytes and memory expandable to 1G byte. The 704 will support IBM's OS/2 2.11 for SMP, OS/2 LAN Server 4.0 and Windows NT 3.51. Single- and dual-processor models will be available in May with prices starting at $18,995. A symmetric multiprocessing server will be available in June.

■ A powerful new carrier

Northeast Utilities, Inc. has jumped on a provision of the new Telecommunications Reform Act that lets gas and electric utilities offer telephone services. Last week the company announced plans to run optical fiber along 410 miles of its power line rights-of-way and sell bandwidth to other carriers. Teamed up with Five Com, Inc. and Central Main Power Co., the new business, NU/Mode 1 Communications, Inc. plans to offer lower rates than traditional carriers' carriers.

Global carriers quash Notes death rumors

By Joanie Wexler

Some of the biggest global network operators are snuffing out chatter that the demise of AT&T Network Notes would mar their public Notes service plans.

Officials of British Telecommunications plc, Telstra, Deutsche Telekom AG and the IBM Global Network said they are committed to public Notes services and, to back up their claims, have come forward with deployment plans showing launch dates ranging from last week to the first quarter of 1997 (see graphic).

Many worried that carriers around the globe might chuck their Notes services after losing one very big incentive for building them: interoperability with AT&T's potentially huge U.S. customer base.

But that's not the case so far.

One reason the carriers are forging ahead despite the loss of a key partner is that they are likely to gain others that can help them deliver global Notes services to the ripe U.S. market, including WorldCom and CompuServe, Inc. These companies will be "announcing their membership in the Multimedia Services Affiliate Forum [MSAF] soon," said Jim Lidestri, worldwide manager of collaborative services at the IBM Global Network, an MSAF member.

MSAF was formed last fall to develop common specifications for interoperability of applications-oriented services such as Network Notes, explained John Nolan, director of strategic marketing for AT&T new services.

AT&T remains an MSAF member, and AT&T and Lotus Development Corp. have not severed their contract. The two companies are said to be working on Internet-based Notes products, and Lotus' general manager of architecture and technology, Alex Morrow, indicated at last week's CeBIT conference in Hannover, Germany, that the company was hoping to revive its public Notes service deal with AT&T.

Some AT&T Network Notes customers, though, will look elsewhere for service. "We'll tell our clients to go with WorldCom — a company with a track record" in Notes services, said Mark Johnson, president of MFJ International, a maker of an intercompany sales automation application for Notes Version 4. "Most clients will depend on a public Notes service, and WorldCom has connections into 100 countries," he said.

Public Notes plans

Network operator	Service availability
BT	Now
CompuServe	Now
Deutsche Telekom	Q4
IBM	Q2*
Telstra	Q3
WorldCom	Now

*In multiple countries with local dial connections back to the U.S. Plans for local servers on three other continents in Q1 1997.

Meanwhile, it does not hurt MFJ's options that BT launched its Notes service last week. BT cited relief that AT&T was no longer in the market. "We'll miss the competition," spokesman Simon Gordon joked.

The IBM Global Network confirmed it will turn on its service in May with international connectivity back to a U.S. Notes server farm. In the first quarter of 1997, server farms in Europe, the Asia-Pacific region and Latin America will go live to give better performance and reliability to non-U.S. based users, Lidestri said. The service is in trial now.

Telstra, the Australian telephone company, said it would be up and running in the third quarter. Germany's DT said it is on track with service deployment "later this year."

Those companies form a subset of the MSAF, for which Notes services remain a top priority. Other application services the group will work to connect include Novell, Inc. AT&T NetWare Connect Service (ANCS) and NetWare Directory Services, as well as Microsoft Corp. applications, like Exchange Server.

But Notes is the first focus for most members, and interoperability pilots are expected in the second half of this year.

Contributing to this story are Torsten Busse in Munich, Cara Cunningham in Paris, Brad Howarth in Sydney and Sari Kalin in Hannover.

ABEND

abend *(n)* **1:** abnormal end to a computer process **2:** the on-line fountain of 'Net wit and high-tech humor found on Network World Fusion (www.nwfusion.com).

Ways the Internet could get worse

- Rigorous user screening process abolished by America Online.
- Dan Quayle appointed head of "bandwidth expansion tiger team."
- Free netcom account with purchase of Big Mac.
- Supreme Court rules "MAKE MONEY FAST" posts protected by First Amendment.
- Three words: Gallagher home page.

For more "Ways the Internet could get worse" and other cyberoddities, visit Abend on Network World Fusion. Select NetRef, then Abend.

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Internetworking

Cisco aims to tighten its grip on SNA/LAN market

By Jim Duffy

San Jose, Calif.

Cisco Systems, Inc. last week unveiled a broad initiative, supported by a few new products, to tighten its hold on the SNA internetworking market.

The CiscoBlue initiative includes a two-year product delivery schedule to address various facets of the IBM SNA internetworking space.

New CiscoBlue products include stackable token-ring switches for workgroups and desktops, as well as software for reducing backbone overhead and mainframe processing.

Some of the offerings, such as the stackable workgroup token-ring switch, were expected (*NW*, Jan. 29, page 1). That device, which has not been named yet, sports eight autosensing 4M/16M bit/sec switch ports in a base unit, with expandability up to 16 ports.

As many as eight switches can be stacked together for a total port density of 128, Cisco said.

The desktop switch, called the Switched Access Unit (SAU), is positioned as a token-ring concentrator replacement and will be about double the port density of the workgroup switch, according to the company. It, too, will feature autosensing 4M/16M bit/sec switched ports.

The workgroup switch will ship in the next 60 days, and pricing will be announced then. The SAU will ship in the first half of 1997. Pricing will be disclosed at that time.

For backbone transmission efficiency, Cisco is shipping Release 11.1 of Cisco IOS, which includes dial-on-demand routing (DDR), Advanced Peer-to-Peer Networking routing over multiple media types and remote user configuration enhancements.

SNA DDR allows users to keep SNA sessions alive while tearing down the ISDN connection, thereby saving WAN costs. Cisco IOS 11.1 also supports APPN routing over Switched Multimegabit Data Services, ISDN, Asynchronous Transfer Mode and PPP links.

Additionally, it supports Boundary Access Node, a media access control-layer bridging technique that requires little router configuration when connecting remote users to SNA front-end processors via frame relay.

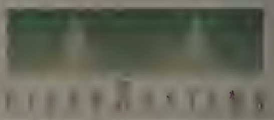
In five to six months, Cisco will ship Cisco IOS 11.2. It will include a feature called TN3270 Server, which enables Cisco routers attached to an IBM mainframe via Cisco's Channel Interface Processor (CIP) to off-load TN3270 terminal emulation processing from the mainframe host.

"We have a gigantic effort not to buy more mainframes but still grow," said George Young, an associate at a large New York-based investment firm. "If we're successful in off-loading TN3270, we'll be able to save between 20 and 25 MIPS, and the current cost of a MIP is about $20,000."

Though much of CiscoBlue is targeted specifically at IBM shops, some elements — particularly in the switching arena — are not, leading some analysts to question why they were included in the strategy in the first place.

"What does the LightStream 1010 [ATM switch] have to do with a 'Blue' strategy?" asked Frank Dzubeck, president of the Communication Network Architects, Inc. consultancy in Washington, D.C. "There's no CiscoBlue switching." ■

PARTIAL CISCOBLUE ROAD MAP

CiscoFusion Blue Switching	Cisco IOS LAN/SNA convergence	CiscoWorks Blue network management	Availability
▶ LightStream 1010 ATM switch ▶ Stackable token-ring switch	▶ TN3270 Server ▶ SNA backbone enhancements	▶ SNA Maps ▶ SNA View 	1996
▶ Token-ring LAN emulation ▶ Catalyst 5000 token-ring module	▶ Native Client Interface Architecture enhancements ▶ Channel-attached High Performance Routing	▶ Token-ring VLAN management ▶ Connectivity Toolkit ▶ Response Time Reporter	1996-1997
▶ Token-ring Switched Access Unit	▶ SNA session switching ▶ Protocol servers	▶ Performance Solver	1997

Microsoft delivers Internet product smorgasbord

By Peggy Watt

San Francisco

Serious about winning the Internet war, Microsoft Corp. wants to move the battle to turf it knows best: the Windows desktop.

Microsoft officials last week delivered the first extensions to its operating systems and tools for the World-Wide Web. Many of the announcements, including Web-aware Windows functions, support for Sun Microsystems, Inc.'s Java and a slate of Web-enabled tools, deliver what Microsoft promised last December when it belatedly described its Internet strategy.

Microsoft filled the arms of some 5,000 developers at the Professional Developer Conference here with a wealth of beta software — including Internet Information Server 1.1 and Explorer 3.0, which both support the new ActiveX technology — plus tool kits. ActiveX basically reinvents OLE controls to help developers craft active, as opposed to static, content Web pages.

For the end user, this means Web pages that now look the same for everybody can be redesigned on the fly to answer users' requests, or they can even be tailored to a given user (see story, this page).

Universal client anyone?

Microsoft's centerpiece remains the Internet Explorer browser being built into Windows 95 and Windows NT.

"Microsoft will put a strong level of integration into Windows," Bill Gates, Microsoft's chairman and chief executive officer, told the developers. "Everything should be accessed through the browser."

By midyear, Microsoft expects to ship a product code-named Nashville, an Internet Add-on Pack for both Windows 95 and Windows NT. It will let users navigate the Web through a hierarchical directory and retrieve on-line information with the same point-and-click operations they use locally.

Jabbing at Java and new options from Sun and Netscape Communications Corp., one Microsoft official called completely Web-based paradigms "a broken solution."

Microsoft prefers to leverage what it already owns — Windows and Windows applications.

"We want to start from the very large base of computing that's already established" by extending existing Windows applications and languages, said John Ludwig, vice president of Microsoft's Internet Platforms and Tools division.

But the Windows centerpiece is logical and predictable, noted analyst Rob Enderle of Giga Information Group, Inc. in San Jose, Calif. "It's something you can do when you own 80% of the desktop market," he said.

Linking BackOffice

Microsoft is also Web-enabling its Windows NT-based suite of BackOffice applications.

The still unreleased Exchange Server 4.0 will receive an add-on Exchange Web Connector this year so users can read and post to live public folders through a Network News Transaction Protocol feed, according to Todd Warren, group product manager for Microsoft BackOffice.

Also, Explorer users will be able to access Exchange public folders from the browser, not just through an Exchange client.

Microsoft is developing search technology to handle "arbitrary" data types and context searches, as well as standard text and the HTML used in Web sites, Warren said. New wizards will answer SQL Server queries in HTML format.

Security

Microsoft helped resolve one 'Net issue by embracing a solution to the thorny question of security for applications downloaded from the Internet. The company licensed VeriSign, Inc.'s digital signature technology, which stamps executable programs distributed via the Web with the vendor's name, ensuring it was not tampered with.

Many distributors said they will support the Microsoft initiative, which must also be supported in the browser. ■

ActiveX tools

Microsoft Corp.'s latest Internet application plans rely heavily on its own and third-party tools and languages, as well as the preliminary release of a distributed version of its OLE technology.

Anchoring the plan is a series of ActiveX tools, including:

■ ActiveX Controls, formerly called OLE Custom Controls, which simply are reusable software components that can be created by development tools such as Visual Basic and Borland International, Inc.'s Delphi.

■ Active scripts, which let users manipulate ActiveX Controls and link them together in larger applications. Active scripts can be created with the future Visual Basic Scripting Edition or JavaScript-compatible scripting languages.

■ ActiveX Documents, which let Web browser users interact with network-based applications and data. These resources do not have to be converted into HTML format.

■ The ActiveX Server Framework, which supports ActiveX Server Controls and ActiveX Server Scripts and runs on Microsoft's NT-based Internet Information Server. In essence, this extends ActiveX to Microsoft BackOffice.

■ Distributed Common Object Model (DCOM) — formerly called Network OLE — which is Microsoft's long-awaited distributed object technology. For the most part, until now a Microsoft object could only work with other objects on the same machine. DCOM lets them work across the network.

DCOM is part of the beta release of Windows NT 4.0.

■ Jakarta, which will be Microsoft's visual programming environment for Java. COM interfaces will be accessible as Java-compatible classes.

—John Cox

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InSite

AT&T reveals ANCS network underpinnings

By Joanie Wexler and Kevin Fogarty

Holmdel, N.J.

What does it take to build the world's largest NetWare network?

If you've heard about AT&T NetWare Connect Service (ANCS), that question may have crossed your mind. As the foundation of AT&T's months-old remote access network designed for millions of users, the Novell, Inc. NetWare operating system has taken the ultimate step in shedding its workgroup roots.

Giving NetWare a public network identity was basically "a big systems integration job," deadpanned the man in charge of building the network, Tibor Schonfeld, director of data and multimedia services at AT&T Bell Laboratories here.

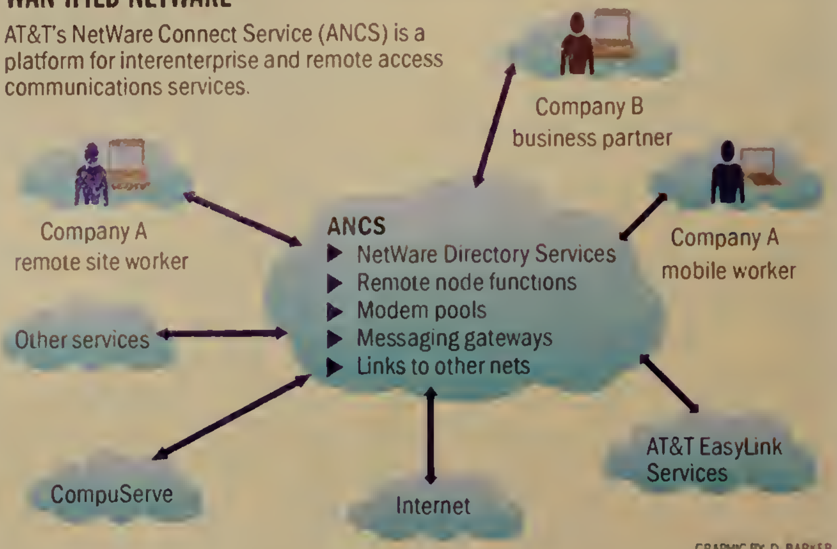
That's putting it mildly. His assignment was to support TCP/IP and IPX, and multiple client platforms; manage a directory that protects data to the file level and quickly locates millions of objects on the net; and run links to the Internet and other nets (see graphic).

One of those links was to be to the AT&T Network Notes network, which AT&T scrapped (*NW*, March 4, page 1).

Much of this work required modifications to NetWare. For example, NetWare Connect 2.0 — Novell's remote access client software on which ANCS is based — does not support compression. This made the client software (accessing the ANCS servers at 14.4K bit/sec) slow, according to outside observers.

WAN-IFIED NETWARE

AT&T's NetWare Connect Service (ANCS) is a platform for interenterprise and remote access communications services.



GRAPHIC BY D. BARKER

To remedy this, Novell recoded the software for the ANCS offering and AT&T is upgrading its modem pool from 14.4K to 28.8K bit/sec, the observers said.

Novell has also increased the performance of NetWare Directory Services (NDS) — the heart of ANCS — per AT&T's requests, Schonfeld said.

Native NetWare limits users to linking to one NDS tree at a time, according to Erik Grimmelmann, AT&T vice president for ANCS. AT&T had to create a multitree client in order to support interenterprise networking. This capability "was created to meet AT&T needs but probably will be made generally available," he said.

A critical goal for ANCS was to make sure reconfigurations and upgrades could be done without bringing the network down. Schonfeld said he solved this by designing lots of alternate routing paths into the net.

What it is

ANCS, a joint effort between AT&T and Novell that went live late last year, is an outsourcing service that "WAN-ifies" NetWare. It targets customers wanting to turn over the management of remote access servers and modem pools to AT&T and communicate with business partners without linking internal networks.

But for users seeking only to link internal NetWare LANs over a WAN, the ANCS economics are not there, said Jonathan Cohen, a sales engineer at Computing Ability, Inc. in Englewood, N.J., a Novell integrator that helped test ANCS. This is because ANCS runs on the AT&T InterSpan frame relay network, and the permanent virtual circuit charges are higher with ANCS than with InterSpan, he said.

And for some early adopters, the jury is still out. "Bell Labs still has some hoops to jump through to get it to work for us," said Ken Thygeson, manager of the technology infrastructure group at McGladrey & Pullen (M&P), an accounting firm in Minneapolis.

M&P made the decision to go with ANCS in September, but the service was not usable until late January, he said, veering dangerously into tax season. "Had I known it would take this long, I would have postponed deployment," he said.

Scaling problems

The enormity of the scaling and the associated testing for ANCS held the service up from delivery in mid-1995 until November 1995, AT&T said.

Fortunately, Schonfeld had learned a bit about network scaling from his previous assignment: designing AT&T's InterSpan frame relay network. InterSpan frame relay was built as a monolith that could be expanded only by adding more relatively low-capacity StrataCom, Inc. IPX switches.

When frame relay demand exploded two years back, AT&T feverishly added switches — sometimes two a day — to keep up. This time, AT&T decided to go with a modular design for the physical layer. To access ANCS, users connect by dedicated InterSpan frame relay or analog dial-up links into FDDI networks housed in AT&T central offices. The nets, dubbed Service Node Router Complexes (SNRC), are hooked together by a T-1/T-3 backbone.

Schonfeld *says giving NetWare a public network identity was basically "a big systems integration job."*

An SNRC comprises an FDDI ring, off which hangs a Cisco Systems, Inc. access router, communications server, NetWare 3.X bindery server and Cisco 7000 or 7500 backbone router for communicating between SNRCs. The idea is that when SNRC capacity gets strained, AT&T can add another router or server to support more users. ■

What to know before you plug in

Before you start using AT&T NetWare Connect Service (ANCS), there are a few things to think about. Here is a general list of things you'll have to do (taken from internal AT&T documents):

■ Decide what type of access — dedicated or dial-up — each of your sites will need. Dedicated access is appropriate for headquarters and other large sites, but will require a router with a frame relay interface. If you are already an AT&T frame relay customer, you can piggyback ANCS traffic onto your existing frame relay port and configure an additional permanent virtual circuit to carry ANCS traffic between Service Node Router Complexes.

■ Make sure any of your routers involved in passing IPX and IP traffic support default routing. This allows traffic to default to a router in the AT&T network that carries the information required to forward traffic between external resources and your internal network end points. Without this system, your routers would have to maintain routing tables for everyone connected to the ANCS network. Most routers support default routing for IP, but not all support it for IPX.

■ Ask AT&T for the proper version of the IPXRTR.NLM router module in NetWare servers to support default routing.

■ You'll have to register your IPX LAN segment, server and router addresses with AT&T. If you've been using unregistered IPX addresses, you will have to readdress your nodes.

■ If you are running NetWare 4 servers, ask AT&T for a proper version of the DS.NLM module to ensure interoperability with the ANCS NetWare Directory Services.

—Joanie Wexler

PeopleSoft to support Sybase DBMS

By Barb Cole

Emeryville, Calif.

Sybase, Inc. will get a boost later this month when client/server applications maker PeopleSoft, Inc. announces support for the System 11 database, which Sybase rolled out in December.

However, packaged client/server application market leader SAP AG has yet to join the System 11 party and declined to comment on its plans. The lack of support by SAP could hurt Sybase given that database sales are increasingly being determined by purchases of packaged client/server applications, analysts said.

"For many companies, the applications become the core [software] infrastructure from which the database sale follows," said Clare Gillan, director of the application and information access service at International Data Corp. (IDC) in Framingham, Mass.

Sybase endured flat server sales last year after several key application vendors — including PeopleSoft — failed to support the company's then-current database release, System 10. The lack of applications support and System 10's general instability are credited with driving the company's stock price down nearly 40% last summer.

While System 11 includes performance and scalability improvements over the previous edition, it still lacks row-level locking, a feature used by some applications to ensure that multiple users can work on the same data without conflicts. Sybase officials said they are committed to delivering row-level locking in a future release.

Sources said SAP would not support the database until row-level locking is added.

SAP accounted for about one-third of the client/server applications market in 1995, according to IDC.

Sybase officials said the company has shipped some 2,500 copies of System 11 since early this year. The company also said more than 100 application vendors — including Hyperion Software, Inc. and Dun & Bradstreet Software, Inc. — now support System 11.

Baan Co., an up-and-coming application vendor, is still benchmarking System 11 but is expected to support the database. ■

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Three vendors raise remote access ante

By Jim Duffy

Three of the top vendors in the remote access market last week made life a bit more difficult for their many competitors by introducing tools for easing ISDN connectivity to corporate nets.

Microcom, Inc., Motorola, Inc. and Shiva Corp. separately rolled out new and upgraded products that support ISDN lines for remote office connectivity.

"They're raising the bar by getting ISDN on all their platforms," said Jeremy Duke, senior analyst at In-Stat, Inc., a consultancy in Scottsdale, Ariz. "The remote access server market is starting to mature, so we're going to see more of these types of software enhancements and upgrades on the boxes that are out there."

Microcom unveiled a new version of its LANexpress client and server software that features improved performance and support for Windows 95 workstations.

LANexpress 4.0 remote client software allows Windows 95 users to connect to multivendor access servers over dial-up analog and ISDN lines.

When connecting via an ISDN Basic Rate Interface terminal adapter, users can achieve throughput of 256K bit/sec, Microcom claimed.

The LANexpress 4.0 server supports V.120 rate adaptation and PPP for interoperability with a variety of ISDN terminal adapters. It can be configured with a mix of internal 28.8K bit/sec modems, ISDN or serial interfaces to support various network requirements.

LANexpress 4.0 remote client software is priced from $425 to $850. Pricing for the LANexpress 4.0 server ranges from $4,495 to $10,995. Both are available now.

Meanwhile, Motorola unwrapped three products: the BitSurfr Pro for Macintosh, a three-port card that connects the Macintosh to nets over ISDN and analog lines at 128K bit/sec; the HMTA 200 ISDN/V.34 card, a combination 28.8K bit/sec fax/modem and ISDN BRI terminal adapter; and the BitBrick, a battery backup power supply for the BitSurfr Pro.

Remote access roundup

Microcom
- LANexpress 4.0 server and remote client

Motorola
- BitSurfr Pro for Macintosh
- BitBrick battery backup power supply for BitSurfr Pro
- HMTA 200 ISDN/V.34 terminal adapter/fax mode
- ISDN LifeGuards service

Shiva
- ShivOS 4.0
- LanRover/Plus with ISDN BRI

Motorola also announced a service called ISDN LifeGuards, for seven-day-a-week assistance in setting up ISDN connections.

The BitSurfr Pro for Macintosh, HMTA 200 and BitBrick are priced at $495, $895 and $79, respectively, and are available now.

For its part, Shiva rolled out the ShivOS 4.0 operating system for its LanRover remote access servers and an integrated ISDN BRI for the LanRover/Plus.

For increased performance, ShivOS 4.0 includes Multilink PPP channel aggregation and STAC data compression for throughput of up to 512K bit/sec over two ISDN BRI channels. For ease of use, ShivOS 4.0 provides a ShivaRemote client installation scripting utility that guides end users through ShivaRemote client connection file setup.

To cut WAN costs, ShivOS 4.0 enables users to keep dial-in connections up by spoofing protocols yet activate and pay for the connection only when data is being sent.

"Shiva's attacking the two major cost components of remote access," said Michael Howard, president of Infonetics Research, Inc. in San Jose, Calif. "One is line costs, and the other is in installing, configuring and problem-solving remote access technology."

ShivOS 4.0 is available now and costs $275 to $495 for existing users. The LanRover/Plus with the integral ISDN BRI is priced from $2,929 to $8,119 and is available now.

☎Microcom: (617) 551-1000; Motorola: (800) 894-4736; Shiva: (617) 270-8300.

Sun refuses to rest on Internet laurels

By Ben Heskett

Sun Microsystems, Inc. next week will announce in New York an array of World-Wide Web-enhanced products across its software and hardware product lines.

That announcement will be followed in April by a Sun Microsystems Computer Co. (SMCC) unveiling of six high-end servers based on configurations of as many as 30 of the company's powerful UltraSPARC processors. Previously, the Sun hardware subsidiary had only employed UltraSPARCs in workstations and workgroup servers.

Sun's *Keeley says all SunNet Manager and Enterprise Manager consoles will be Java-enabled.*

In a recent briefing with *Network World*, Terry Keeley, vice president and general manager of enterprise network products at Sun software subsidiary SunSoft, Inc., hinted at some of the upcoming announcements.

He said all SunNet Manager and Enterprise Manager consoles will be Java-enabled, and some server functions in the products will be Web-based.

That means alerts from desktops running various operating systems can be seen through a Solstice SunNet Manager or Solstice Enterprise Manager console using Java applications. The administrator, in turn, can manage the problem using a Java application. Currently, Solstice SunNet Manager and Enterprise Manager do not have any Web capabilities.

Without applications such as these, "Java is something you just build little toys out of," said Jim Greene , an analyst with Summit Strategies, Inc., a Boston-based consultancy. "They need to start proving that there are real applications that can be done with it."

Announcements also will include "Joe," a software bridge between Java and SunSoft's object middleware, dubbed Network Enterprise Objects (NEO). NEO incorporates Common Object Request Broker Architecture technology, which will enable Java applications to work with other CORBA applications. Joe will be free of charge.

More details on Kona, Sun's skeleton operating system for its Java Client machines, will be given at the event, as well. Java Client, which made its debut at UniForum in February, is Sun's version of the $500 network appliance being championed by Oracle Corp. Chief Executive Officer Larry Ellison.

SMCC is also expected to announce some new Web servers as Sun tries to hold off its many new competitors in this area.

However, that hardware may pale in comparison to the UltraSPARC servers SMCC plans to launch in mid-April.

The new servers will be entirely hot-swappable. In other words, when an UltraSPARC server needs to be upgraded, the cooling fans, disk drives, CPU boards and other components remain with the customer. Only the chassis needs to be changed.

The boxes will come with as many as 16 slots for network interface cards supporting technologies such as FDDI, token ring, Ethernet and Asynchronous Transfer Mode. The boxes will run Solaris 2.5 with the chip optimized for the company's move to a 64-bit architecture. The servers will be suitable for running high-end applications such as databases.

Other features include a high-speed bus called Giga Plane and CPU boards containing two UltraSPARC chips with clock speeds up to 200 MHz. The CPU boards will feature a high-performance I/O subsystem called the Ultra Port Architecture.

The company also plans to pull some of the functionality out of the Solstice network management platform and bundle it with every box as a server management utility.

Senior Editor Jim Duffy contributed to this report.

Voice over 'Net

Continued from page 1

ing about the Internet phone market, pointing out that traffic would be limited since users of Internet phone software from such companies as Quarterdeck Corp., VocalTec, Inc. and VoxWare, Inc. can only talk to others with the same software. But that could change now that those firms and others have joined the alliance led by Microsoft and Intel.

And as if the initiative was not enough, CompuServe, Inc. said last week it will offer software in the second quarter that allows users to make free Internet phone calls via its on-line service. CompuServe is also a backer of the new Internet phone alliance.

While it's clear why ACTA is worried about the Internet phone calls, it is not obvious whom the group should be fighting.

WinTel strikes again

The Microsoft-Intel effort calls for a common implementation of standards from organizations such as the International Telecommunication Union and the Internet Engineering Task Force that will enable Internet phone products to work together. It will also support data- and videoconferencing over the 'Net.

The specs will be supported in products such as Microsoft operating systems, Intel videoconferencing systems and other 'Net communications software by year-end, said Pat Gelsinger, an Intel vice president. Microsoft even released a subset of the common implementation specification at its developers' conference last week. The group is also working with equipment vendors and Internet service providers (ISP) to get better quality of service for voice over the Internet, and for base-level interoperability among all 'Net voice software.

While it's clear why ACTA is worried about the Internet phone calls, it is not obvious whom the group should be fighting: ISPs, software makers or both.

"How could they want to be regulating us [as a carrier]?" wondered Michael Goldstein, president of VoxWare in Skillman, N.J. The company this month introduced TeleVox, an Internet phone that compresses conversations to require just 2.4K bit/sec to heighten voice quality. "All we're doing is making software."

ACTA's legal counsel Charles Helein, however, specifically cited software makers — not ISPs — as those who should be barred from 'Net voice activity.

Despite technology advances such as VoxWare's, some say the Internet probably will not compete with the telephony infrastructure for a while.

"Delay-sensitive applications such as voice require time-division multiplexed channels and someone to manage them," said Rick Malone, principal at Vertical Systems Group in Dedham, Mass. But once the technical issues are worked out, Malone said, "phone companies that are not a major Internet provider should worry." ■

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WHAT'S AHEAD

- Java road map from Sun this month or in April.
- Java 1.01, including bug fixes and some specific changes requested by Java licensees, for Solaris, Windows NT and Windows 95. Due in April.
- "Just-in-time" compilers to boost performance of downloaded Java applications. Expected this year from various vendors.
- Debugging and other development tools, including integrated workbenches and visual programming environments. Sun and vendors such as Borland and Symantec will release these tools over the next few months.
- JavaScript, an easy-to-use scripting language that will let users and developers manipulate Java applications. Sun is writing the spec now. No release schedule has been announced.
- Distributed object support. PostModern Computing Technologies will release its BlackWidow object request broker by the end of March. It is likely to be the first product that will let Java objects work together over a network. Sun and Iona Technologies will follow with similar offerings later this year.

Java

Continued from page 1

environments, and to HP-UX in test beds.

- The Java security model is solid.
- Client application performance is adequate.

On the negative side:

- There are minor but annoying differences in the graphical user interface (GUI) displays of Java applications on different operating systems.
- Java security, when coupled with safeguards imposed by a Web browser vendor, can be too restrictive.
- Server applications are too slow.
- Few visual programming tool sets and sophisticated programming utilities are available.
- There is minimal support for distributed applications.

Most Java development work so far is similar to that being done by Applix, Inc. of Westborough, Mass. Applix is building a run-time Java client that runs in a Web browser and works with the company's real-time Unix-based spreadsheet, said Barry Burke, director of strategic planning for Applix.

"Interactive applications let you touch and feel the data," Burke said. "It's this client/server model we've built [for the Web] that's catching everyone's attention."

The current client/server model of application development — with heavy PC-based client applications and fast LAN connections to databases — simply breaks down over the Web. "It's not possible to get the amount or type of data and the compute power to the client," Burke said.

Portable applications

The developers agree that Java applications can be written once and run unchanged on any operating system to which the Java interpreter has been ported.

"The portability works as advertised," said Larry Jackson, technical program manager with the National Center for Supercomputing Applications at University of Illinois, Urbana-Champaign.

Jackson saw this firsthand when his team was preparing a demonstration of a new workgroup collaboration framework and tool set, all written in Java.

At the last minute, one of the Solaris-based SPARCstations went down. The programmers copied the code to a Windows 95 Pentium workstation and ran it with no recompilation.

"I've worked in the C programming market with various cross-platform tools. I've generally found these are portable, but there's 5% to 10% [of the code] you have to rework," said Larry Podmolick, director of technology at Strategic Technology Resources (STR), a Chicago-based consulting company.

"[By contrast], we build all our Java software on Solaris and can take the byte code and deploy it on any server we want," he added.

But developers say there are differences in the way Java applications are displayed in different GUIs. A scroll bar works on Unix but not on Windows NT, for example.

Such differences have been a plague for Sunnyvale, Calif.-based National Semiconductor Corp., which is currently deploying a Java client application that will let electronics designers sift quickly through National's huge parts databases via Web browsers.

"It's been painful to have the application running fine in the test environment and then not have it run fine in actual deployment," said Rick Brennan, National's manager for Web services.

'Java Joust' conference highlights the promise, problems with Sun's offering

"The Java revolution is well under way. It is the de facto standard for programming on the Internet and for large, enterprisewide networks."

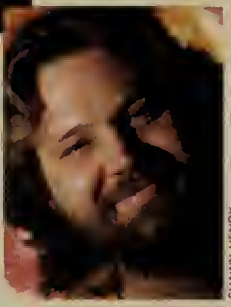
Eric Schmidt, chief technology officer for Sun Microsystems, Inc., Palo Alto, Calif.

"None of what the Java hype promises is real, and I don't expect it to become real soon, if ever."

Brent Noorda, president of Nombas, Inc., Medford, Mass.

There's little room for compromise in the above statements by Schmidt and Noorda, made during a recent Network World Fusion on-line conference about the Java programming language.

The strong views of our two panelists hardly should come as a surprise: Schmidt is one of the point men for Sun Microsystems' ambitious Java marketing campaign, while Noorda has developed a Java language alternative called Cmm.



Sun's *Eric Schmidt (above) and Nombas' Brent Noorda took part in Network World Fusion's conference on Java.*

SHAWN HENRY

But as Network World Fusion's three-week "Java Joust" showed, many network and programming professionals, including some who are openly enamored of Java, are not entirely sold on its real-world potential. To them, Java is an intoxicating, yet essentially untasted, brew.

"Java is real in concept," said another Java Joust panelist, Brian Matthews, chief executive officer of SourceCraft, Inc., a Burlington, Mass.-based firm that develops Java and C++ applications. "However, to turn concept into reality requires more than just marketing hype and venture capital.... Right now, despite all of its hype, Java is just a programming language."

Even our fourth panelist, Jonathan Reeves, clearly a Java believer, acknowledged that the language is still in its early stages.

"It is still too early to determine how well Java will port to a wide variety of machines," said Reeves, chief executive officer of Sahara Networks, Inc., a Cheshire, Conn., company that is developing a Java-based front end for Asynchronous Transfer Mode gear.

Reeves nonetheless predicted rapid development in the programming language and its uses in the market. "What has been lacking to date has been real-world applications which use the technology," Reeves said. "This situation is changing rapidly.... Late '96 will be the time frame for robust Java-based applications."

Some Fusion readers participating in the conference weighed in with some strong opinions. Responding to a question about whether Java will replace C++, one reader said, "No! You will still need C++ to write our tools and full-featured desktop applications. But C++ may be pushed out of simple Web development."

Readers also posted a variety of questions about Java. Some wanted to know how Java differed from Netscape Communications Corp.'s Javascript. Others raised security issues, such as whether efforts have been made to use public/private escrow repositories or other key encryption methods.

The most active Java Joust panelist was Noorda. He laid out in detail his reservations about Java, arguing that Java is too complex, does not support distributed code "is too difficult for small needs and too slow for big needs."

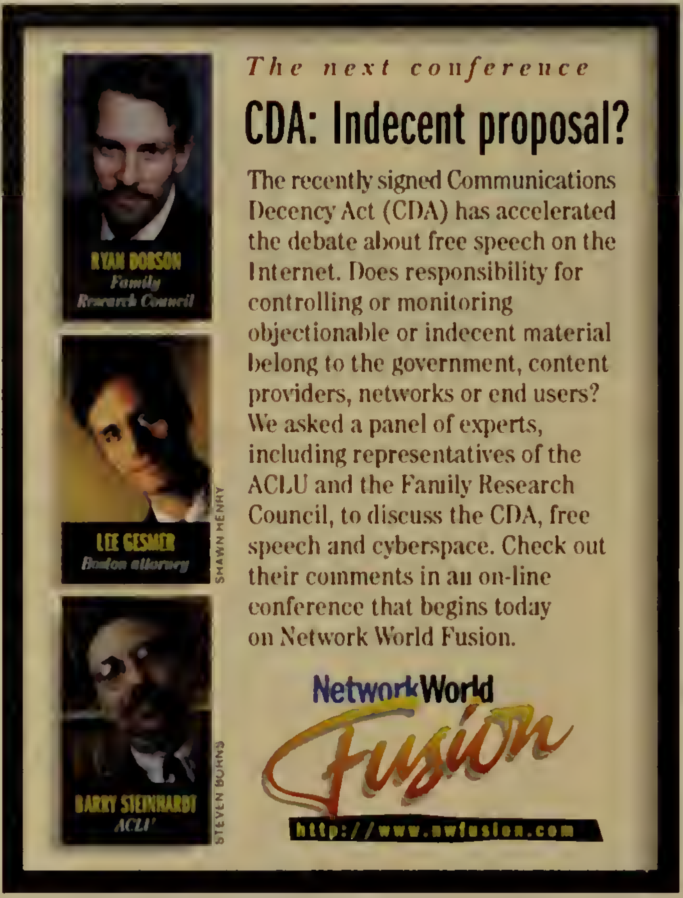
Noorda and several readers traded opinions on Java and the merits of Noorda's Cmm language.

"You are pointing out a number of shortcomings of Java, but they all seem to be shortcomings of the paradigm of internetworked, cross-platformed distributed object applications," one wrote. "Yet you are making a product which will compete with Java. Presumably, this product will work in the same paradigm. If Java, as you say, will never and can never overcome its shortcomings, why do you believe that your product will be able to?"

For his part, Noorda said he found it encouraging that readers were openly discussing various programming languages, including C++, Perl, Ada 95, 4GL, Cmm — and even Java.

"There have been and should remain to be multiple languages in use for programming the 'Net," he said.

— *Chris Nerney*



The next conference

CDA: Indecent proposal?

The recently signed Communications Decency Act (CDA) has accelerated the debate about free speech on the Internet. Does responsibility for controlling or monitoring objectionable or indecent material belong to the government, content providers, networks or end users? We asked a panel of experts, including representatives of the ACLU and the Family Research Council, to discuss the CDA, free speech and cyberspace. Check out their comments in an on-line conference that begins today on Network World Fusion.

Don't feel left out. Head to Network World Fusion to catch this conference on-line. Select Forum then Java Joust.

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The Java security model is still evolving as developers struggle to balance safety with functionality. Java's security is based on the idea of not letting a downloaded Java application do something nasty to the receiving client. It is a good model, developers agreed, but it can be too restrictive.

The downloaded Java application cannot read or write to the local hard disk, so a virus written in Java would not be able to infect the computer's data and programs. Netscape Communications Corp. further restricts the application so that it can only communicate back to the server from which it came. So a downloaded Java application cannot raid other servers.

But these protections also limit what the application and end user can do, Burke said. Applix users cannot update a local image of their Applix spreadsheet because of the security restrictions in Java. "Ultimately, Java will let the users configure trusted applications that will let you do the things you want to do," he said.

ADVICE FROM JAVA DEVELOPERS

- Train your programmers. C/C++ programmers will find the Java syntax familiar; the object-oriented application design issues may be more difficult.
- Java performance is best in small, interactive client applications. Your designs should reflect this.
- Understand how Java's security model interacts with browser security restrictions. Users are finding a trade-off between safety and functionality.
- Expect GUI- and display-related glitches as you roll out Java client applications on different platforms.
- Decide whether you really want to be the first kid on the block to write a critical server-based application in Java.
- For now, linking Java clients to corporate network resources means using remote procedure call or message oriented middleware products that support Java

Client vs. server performance

Java's performance is adequate for the kinds of applications it is being used for now, developers said. But it must get faster.

Unfortunately, any code that uses an interpreter as the application is being executed is going to be slower than compiled third-generation code, such as C.

"That's true," Burke said. "But if you use the Java environment for what it's meant to be used for [that is, interactive client applications], performance is not so bad."

Clearly, that is not good enough on the server, where the heavy application processing is usually done and where an interpreted language's performance deficit would be more noticeable.

But Podmolick expects that to change as soon as Sun and other vendors bring out just-in-time compilers for the Java clients and machine-code compilers for Java servers. "Java will be comparable eventually to raw C code," he said.

So far, Sun has focused Java mainly on client applications that can be downloaded over the Internet and run within Web browsers. These interactive applications constitute most of the work being done today. None of the developers interviewed for this article had built server applications in Java. And some are in no hurry to.

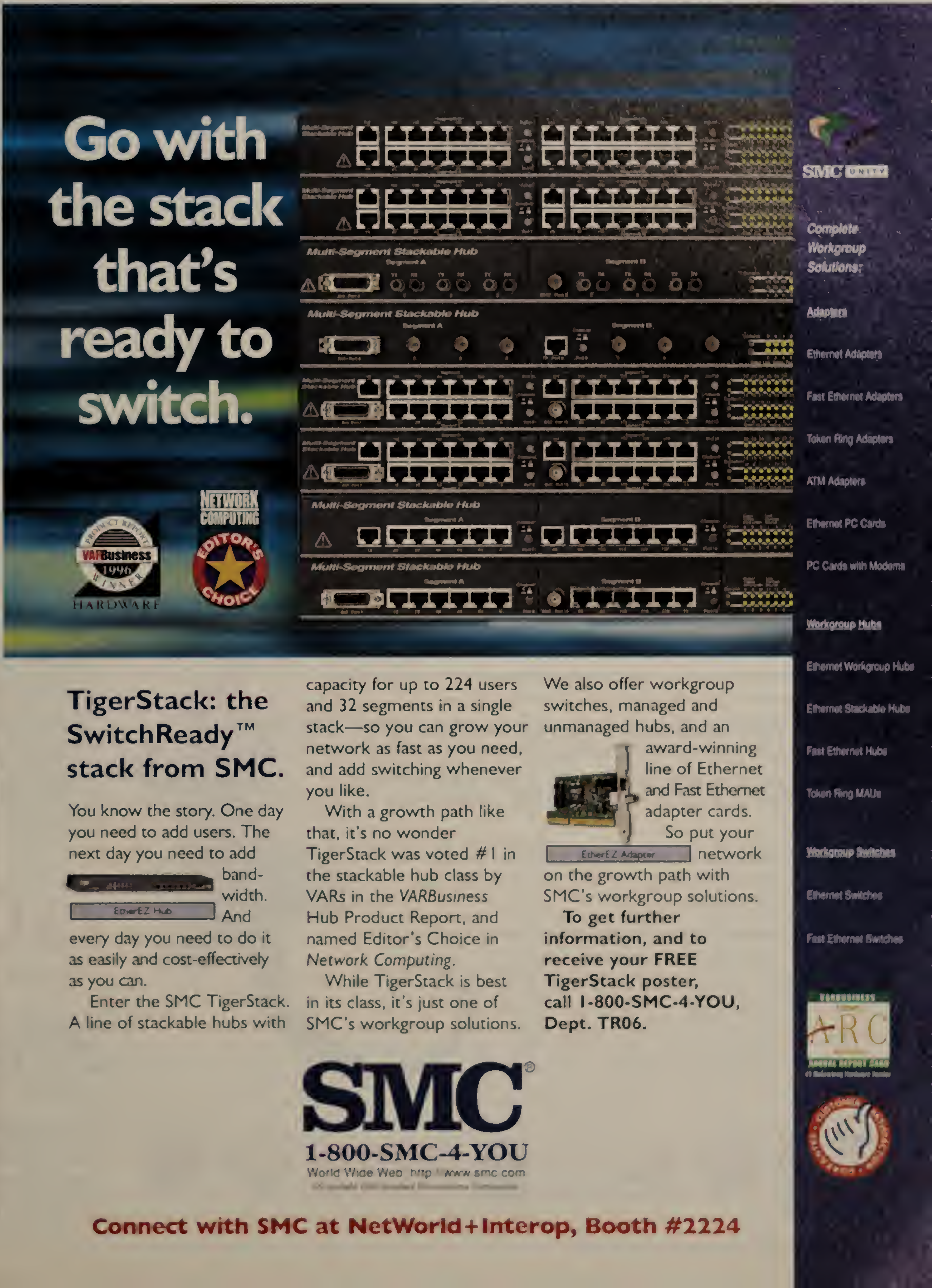
"Java was really meant for user interface management functions, not for Fourier transforms," Burke said. So Applix has no plans to rewrite its C spreadsheet in Java — Burke estimated it will be about a year before Java is mature enough for server applications. But others think Java will be a force on the server.

Developers such as Podmolick want to create an object-oriented Java application, then distribute the components on client and server computers as needed. "You have much more freedom to assemble these [components] in different ways for different applications," he said.

For users to realize this freedom, Java's overall performance on the server must improve. And Sun and other vendors must make it possible to interconnect Java objects over the network via object request brokers based on the Common Object Request Broker Architecture.

Java plus the ORBs could liberate client/server computing, according to Podmolick.

"Client/server has turned into a monolithic [PC] client hitting a shared database," he said. "There's no concept of breaking up applications in a way that will let you do collaborative work," he said. ■



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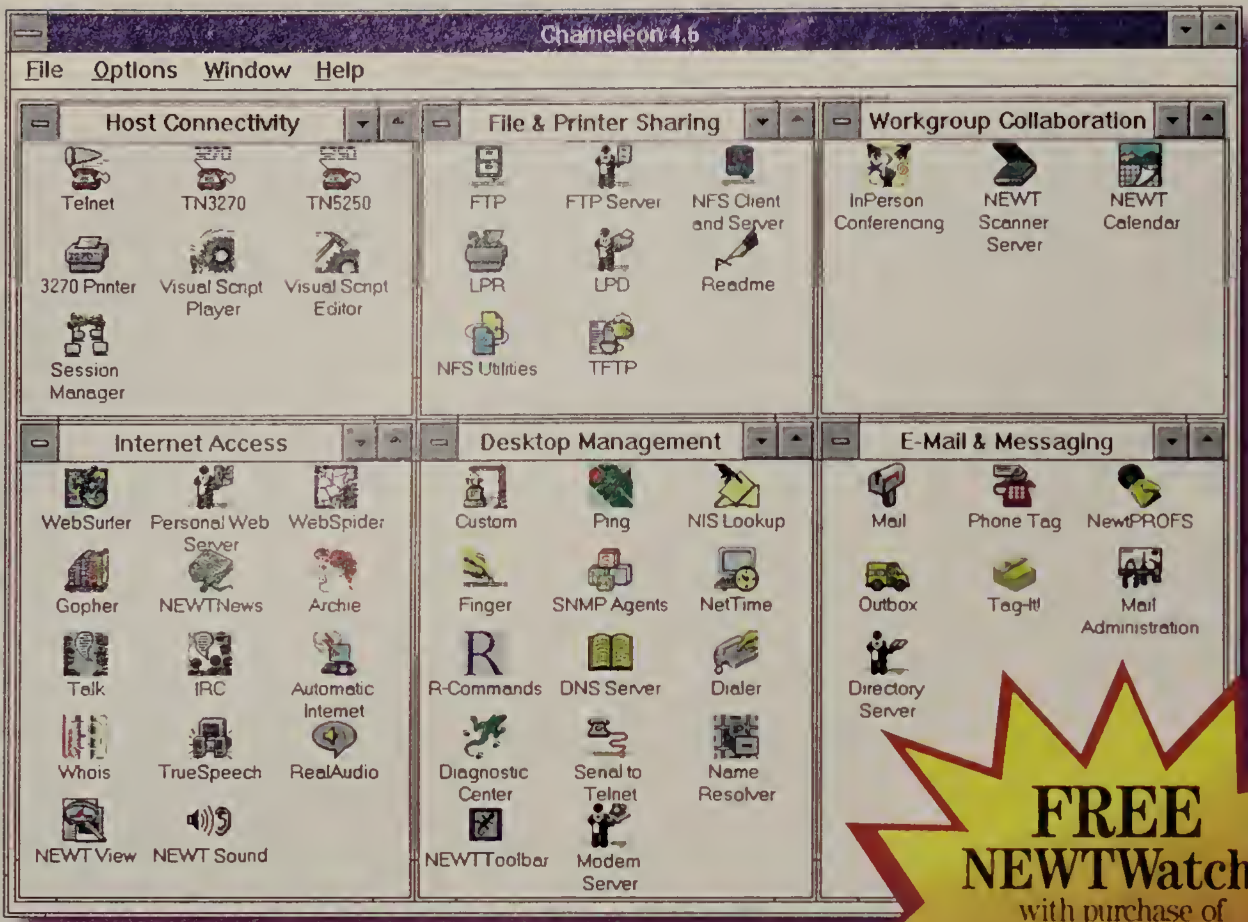

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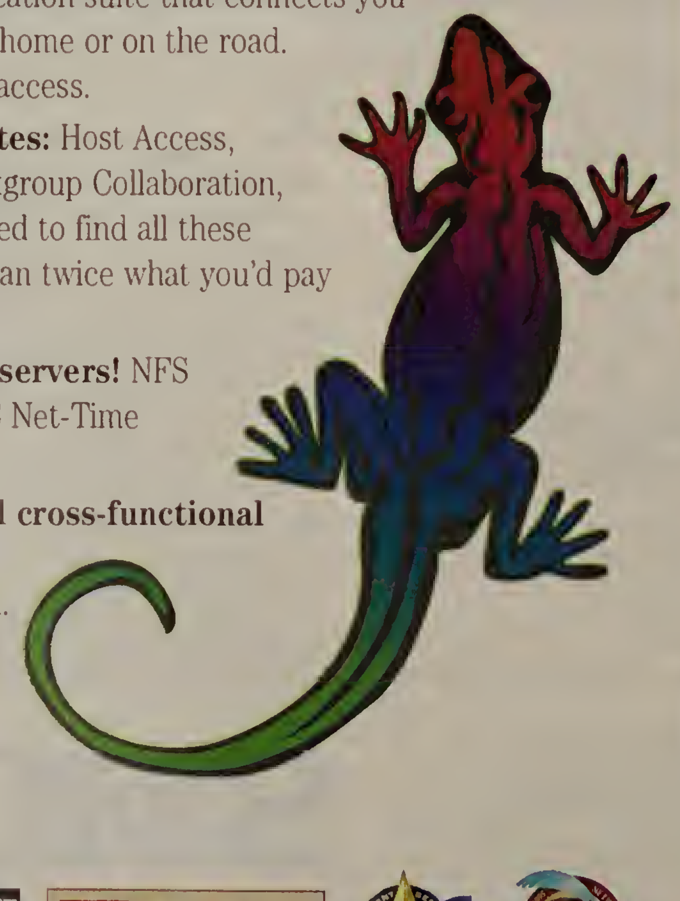

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Briefs

■ *The* **Federal Communications Commission** *has approved NYNEX Corp.'s plan to* **discount port and access charges for very large WANs** *made up of multiple intra-LATA frame relay clouds connected by dedicated links. The FCC rejected MCI Communications Corp.'s protest of the proposed 10% discount for frame relay nets with at least 600 nodes (NW, Dec. 4, 1995, page 17).*

■ *Bolstered by a money-back guarantee, some smaller* **Sprint Corp.** *customers are already coming out with vanity numbers based on the new* **888 toll-free code.** *IQ, Inc. in Maynard, Mass., has introduced 1-888-BRIEFINGS for its information brokerage service (now priced at $888 per report). Through Aug. 31, Sprint promises to refund toll charges up to $1,000 per month if 888 proves inferior to 800.*

■ **Specialix, Inc.** *unveiled two new product lines for the* **remote access** *market. The $1,645 to $2,395 Jetstream line is made up of modular and rack-mountable terminal servers that support Rlogin/telnet access to Unix servers.*

The Highway/Roadster line, priced from $695 to $895, includes PC-based and stand-alone ISDN Basic Rate Interface terminal adapters.

Specialix: (800) 423 5364.

■ **Citrix Systems, Inc.** *has released a Windows NT-based multiuser application for* **dial-up** *computing. WinFrame/Access, which costs $2,995, provides access to LAN-based applications for remote users via modem connections.*

Citrix: (305) 755-0559.

■ *The* **Portable Computer and Communications Association** *has reached final agreement on a universal computer interface for wireless data modems. Based on the Microsoft Network Driver Interface Specification, the spec will allow software developers to enhance Windows applications to work uniformly over any analog or digital wireless WAN.*

Internet access speeds becoming more varied

By Joanie Wexler
Fairfax, Va.

UUNET Technologies, Inc. will broaden its multimegabit-speed Internet access services with offerings that do not require costly T-3 lines and equipment.

The company today introduced 'Net connectivity services at 3M and 10M bit/sec. The offerings — already available from UUNET rivals such as PSINet, Inc. (see graphic) — will join the company's existing fractional T-3 service set.

UUNET's new dual T-1 service, dubbed Double T, gives users 3M bit/sec of aggregate bandwidth. Users buy two separate T-1 lines to the UUNET network, which can back each other

See Speeds, *page 20*

High -speed ISP offerings and local loop options

ISP	Local loop	Multimegabit speeds available (bit/sec)	Monthly cost*	Onetime installation fee
PSINet	2 dedicated T-1 lines	3M	$3,995	$3,595
	SMDS	4M, 10M, 16M, 25M, 34M	$3,000- $12,000**	$5,000
	ATM	10M; 45M	$4,000; $12,000**	$5,000; $15,000
UUNET	2 dedicated T-1 lines	3M	$4,200	$7,000
	Dedicated T-3 line	3M-45M in 3M increments	$5,000- $49,000	$6,000
	ATM	10M	$6,000	$5,000

*Does not include local-loop charges **Includes premises router and DSU/CSU

Spectrum users size up NerveCenter Pro

By Jim Duffy
Rochester, N.H.

The integration of Cabletron Systems, Inc.'s Spectrum management platform and Seagate Enterprise Management Software, Inc.'s NerveCenter Pro software will provide greater visibility into network problems, users said last week.

The two companies recently announced that Cabletron has developed software that lets Spectrum customers use NerveCenter Pro for cross-domain correlation of network and system events (NW, March 4, page 8).

Cross-domain correlation, a capability lacking in Spectrum, is the ability to determine the effect of an event in one network domain on devices in other domains.

For the University of Southern California, this means being able to better gauge the effect of file system disk usage.

"We've got some home-brewed stuff now that says, 'Hey, dummy, file system's full,' " said James Weidel, network manager at USC. "That's one of the things [NerveCenter Pro] is going to buy for us. We can get rid of the home-brewed stuff that's marginal. It gives us a little more flexibility in monitoring systems, in particular."

USC's network and systems are monitored by the same group, Weidel said. As a result, NerveCenter Pro can also help staffers pinpoint the root cause of network and system outages from a Spectrum console, Weidel said.

"If a whole set of hubs go out, it would tell us that's [due to] a power failure on a grid," Weidel said. "We know which buildings on campus are connected together in the same power grid so we could correlate all those [events] together."

Duke University in Durham, N.C., is sizing up NerveCenter Pro for narrowing down discrete alarms on link activity into one.

"Right now, if I lose a primary feed out to a site off-campus, I'll get an alarm on that, and then, if I'm running backups and I suddenly saturate that, I'm going to get an alarm on that," said Bob Currier, acting director of network communication at Duke.

"With NerveCenter — theoretically, at least — I should be able to draw some sort of state diagram and pull that together as one alarm to the operator, instead of three or four or five."

The inductive modeling event correlation capability of Spectrum, meanwhile, presents discrete alarms on each individual threshold or device, Currier said. However, it lacks the capability of pulling those alarms together to isolate the root cause of the problem, he added.

"To this point, I can't sit down with an engineer and say, 'Okay, let's look at the most common occurrences of events that have multiple independent device alarms or failures, that put together mean one thing,' " Currier said. "With [NerveCenter], I should be able sit down and work those out."

The Spectrum/NerveCenter Pro integration capability will ship in three to six months. Pricing was not available.

& Cabletron: (603) 332-9400; Seagate: (408) 342-4500.

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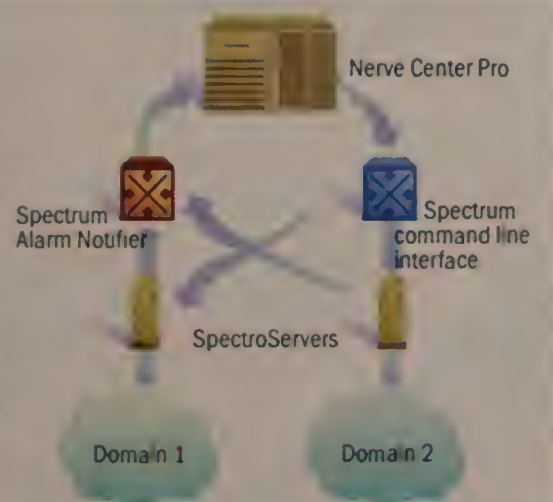


NerveCenter Pro will allow Spectrum users to determine the effect an event in one domain will have on devices in another. Alarms from SpectroServers monitoring single domains are passed to NerveCenter, which correlates them and sends the info back to the SpectroServers through the command line interface.

GRAPHIC BY D. BARKER

Microsoft tunnels through the 'Net with new protocol

By Kevin Fogarty
and Tim Greene
Redmond, Wash.

Microsoft Corp. and a cast of remote access vendors have agreed on a new protocol to provide easy access to corporate LANs over the public Internet with all the security features of a virtual private network.

If adopted by Internet service providers (ISP), the new Point-to-Point Tunneling Protocol (PPTP) could give remote users access to private networks for the price of a local call to an ISP.

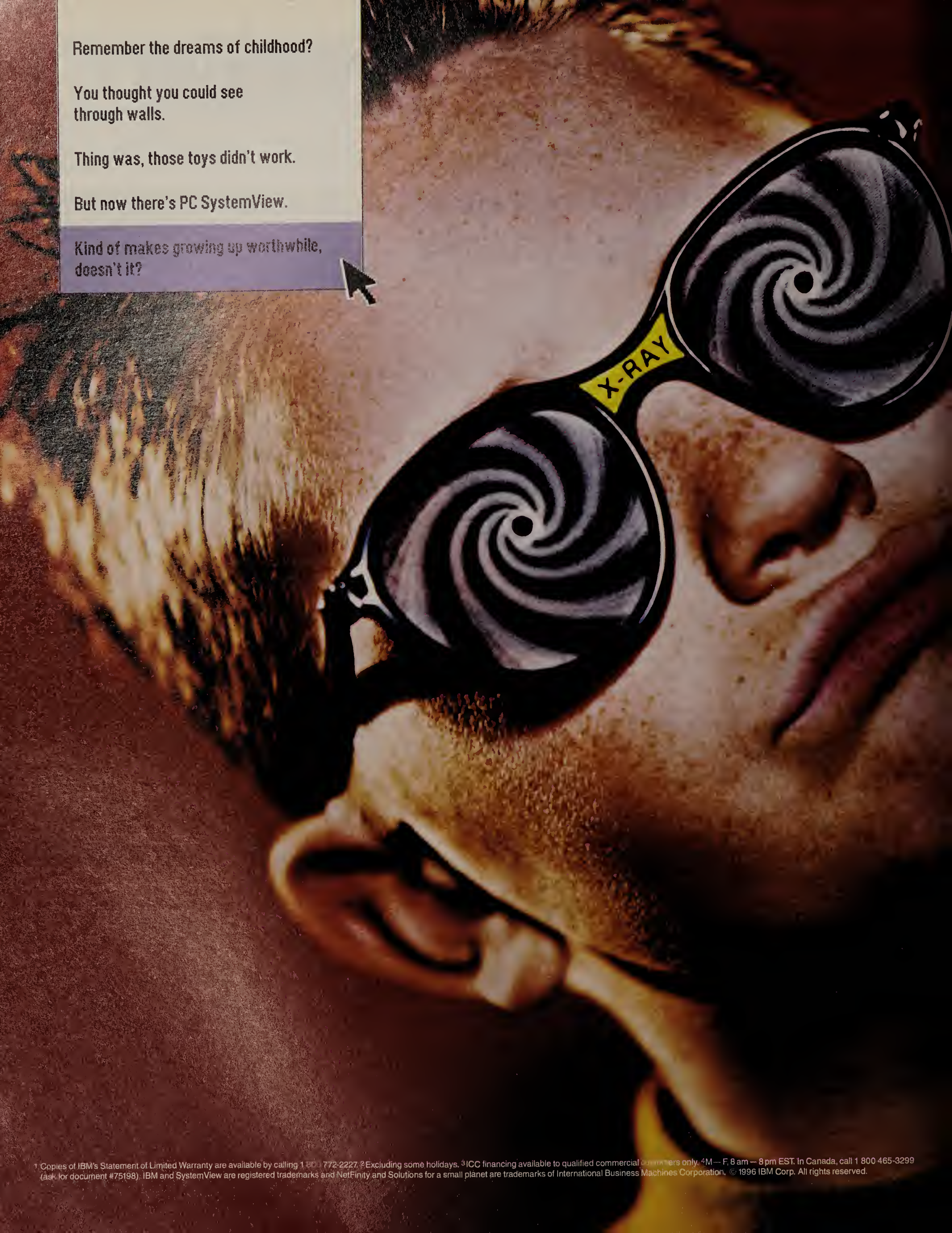
Key to the plan is converting PPP information into PPTP. This translation would be done by the ISP and would allow the traffic to tunnel securely through the Internet, Microsoft said.

PPTP drivers will be included in NT 4.0 Release Candidate 2, a late-stage beta version that will ship late this month or early April, said Enzo Schiano, product manager for Windows NT Server at Microsoft. Ascend Communications, Inc., ECI Telecom, Ltd., 3Com Corp. and U.S. Robotics have all agreed to support PPTP.

Enterprises would be able to take advantage of this secure access service as long as their remote sites supported PPP and their central-site remote access servers supported PPTP.

Security would be offered at two points. First, remote user

See Microsoft, *page 20*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Microsoft

Continued from page 17

traffic would be authenticated by the ISP. Second, if access into the corporate private network was controlled by a Windows NT server, traffic would be authenticated again. If they wanted more security, users could add encryption at the application level.

While it is a good first step toward establishing virtual private networks within the Internet, users should carefully evaluate the level of security it offers, according to Neal MacDonald, an analyst with Gartner Group, Inc, a consultancy in Stamford, Conn.

"You are definitely going to keep needing a firewall, and the NT Server outside the firewall leaves the potential for someone to take over the NT Server and find some way through," MacDonald said.

Still, Microsoft's weight combined with that of important partners gives the effort significance, he said.

A PPTP service from an ISP would be simple for a user to implement. Sites that currently support PPP do not need upgrades for equipment.

And because the ISP would wrap up PPP packets within PPTP packets for transmission across the Internet, users could send data using local IP addresses. Because of the way it supports addresses, PPTP will work across any IP network, not just the Internet.

PPTP does not overcome certain inherent problems with the Internet, namely performance and reliability, MacDonald said. "I would not recommend that any company use the Internet as a primary mechanism for remote access," he said.

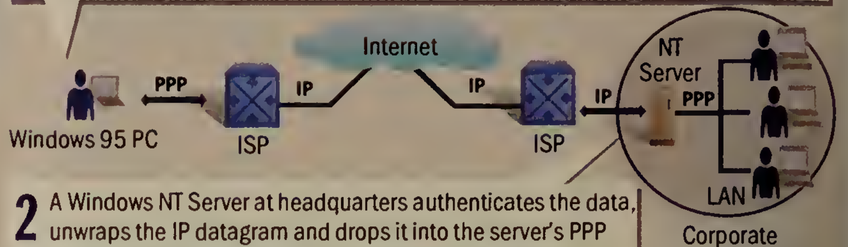
Most ISPs are not equipped to give corporate-level service and support, and many will be unable to offer PPTP at all because they do not use hardware from companies that are part of the PPTP consortium, according to MacDonald.

ISP UUNET Technologies, Inc. said it is considering using PPTP-enabled access servers as a platform for offering remote LAN access services.

The PPTP spec is available now at ftp://ftp.microsoft.com/developr/drg/pptp.■

Tunneling through the 'Net into the LAN

1 A Windows 95 user dials into the Internet via PPP. The Internet service provider's (ISP) access device then authenticates the user as Point-to-Point Tunneling Protocol-enabled and encapsulates the user's PPP frames into IP envelopes for transmission across the Internet.



2 A Windows NT Server at headquarters authenticates the data, unwraps the IP datagram and drops it into the server's PPP protocol stack for delivery to the destination addresses.

GRAPHIC BY D. BARKER

Speeds

Continued from page 17

up if one link fails. Users also can connect each T-1 to a separate UUNET point of presence for POP redundancy, explained Alan Taffel, UUNET's vice president of sales and marketing.

The company also is bringing back 10Plus, a 10M bit/sec service for users situated on MFS Datanet, Inc. fiber rights-of-way. The idea is to access the Internet via MFS' Asynchronous Transfer Mode network to avoid buying costly dedicated T-3 lines and gear.

"There is a trend toward needing super T-1 speeds, but most users don't want to foot the bill," noted Steve Franco, program manager for interactive communications research at The Yankee Group, a consultancy in Boston.

A dedicated T-3 line from a local telephone company starts at about $5,000 per month. In addition, T-3 access requires a high-end router and data service unit/channel service unit, which together total about $40,000. With ATM-based access, equipment costs are less than $3,000, Taffel said.

But with services from competing Internet service provider PSINet, the user does not incur equipment costs with shared local-loop services such as ATM; the firm supplies the gear and bundles its cost into its monthly rate.

UUNET had previously offered a 10Plus service over the MFS network that it discontinued last fall because UUNET equipment could not sustain 10M bit/sec bursts, Taffel said. But new bridges in the UUNET network remedy that, he said.

The new services complement UUNET's existing fractional T-3 services. With these services, users buy dedicated T-3 local loops and throttle their routers back to lower speeds, which are maintained across the UUNET backbone. Like the fractional T-3 services from competitor BBN Planet, users can get 3M to 45M bit/sec services in increments of 3M bit/sec. And they can increase their access speed to the next 3M bit/sec increment on-the-fly.

"[Fractional] T-3 services are better for people who will need more bandwidth and are willing to pay the up-front costs for that flexibility," Taffel said.

Not all agree. "Fractional T-3 is a ridiculous service" because of its expense, said Earl Finniss, product manager for corporate services at PSINet.

He said PSINet will be offering 3M bit/sec-to-T-3 access services over the MFS ATM network in the near future. Today, the company offers 10M bit/sec and T-3 speed services with the MFS access option in seven cities. It has several multimegabit-speed options over Switched Multimegabit Data Service local loops available in six cities.

Meanwhile, BBN Planet offers ATM, aggregated T-1, fractional T-3 and in Washington, D.C., SMDS local loops to deliver 3M to 45M bit/sec services.

Users might want to press their access providers about how they guarantee access speeds when taking in traffic from shared local loops such as ATM and SMDS nets. For example, "if users happen to share an SMDS network with a Top 10 Internet site of the week, performance could take a hit," Franco said.■

Network World Fusion
http://www.nwfusion.com
For more info, including:
- A copy of the PPTP spec
- A look at an alternative based on Nortel's encryption software
- And articles about existing virtual private nets over the 'Net

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INTERNETWORKING MONITOR

The view from Flatland

In 1883, Edwin Abbott published *Flatland; An Adventure of Many Dimensions* about life in a world of two dimensions — two, if you don't count time as a dimension. It is quite limiting to live in a world of X and Y but no Z.

From the way some switch salespeople talk, one could imagine they were recruited from Flatland. They keep talking about "flattening" the network, by which they mean removing routers. For example, a few years ago, I talked to the president of a company building Ethernet-to-FDDI bridges. (The same box now is called their Ethernet-to-FDDI switch.) I suggested that he look into adding some routing functionality to his box. He replied that since there was only one router per site, it was not a big concern for him.

Scott Bradner

Routers are added to networks for a number of reasons. The main ones are managerial compartmentalization, security compartmentalization and the segmentation of broadcast domains.

These reasons are not eliminated in a frame switched environment. One additional reason for routers — traffic segmentation — is affected by a migration to a frame switched infrastructure. This is because traffic segmentation that the routers do is also done by the switches.

Flattening a network by combining subnets should be done carefully with a clear understanding about what caused the separation in the first place. For instance, if a particular LAN in a university network was set up to interconnect the administrative and financial computers, it might not be a good idea to combine it with a LAN that services the undergraduate dorms.

If management structures are designed to assign addresses and set up filters based on many small LANs, they will have to be revised if some of these LANs are to be merged. This is particularly true if the address assignment is delegated to a local support organization for each LAN.

It should be noted specifically that if the LANs support TCP/IP (this is increasingly likely), then the number of nodes per subnet may become important. Most new address assignments in the Internet are in "C-sized" chunks from the part of the IP address space known as the Class C space.

In theory, one can assign two adjacent C-sized assignments to the same LAN and get a single address space that could support 510 hosts. But theory is often ahead of fact. If the C-sized address assignment is from the Class C space (as all currently are), many hosts will assume that the LAN has been assigned a single Class C address and can support at most 254 hosts.

All too many hosts cannot do "supernetting" and combine two Class C nets. There are ways around this by having a router that understands that there are more than one subnet on the same wire, but this is at best messy.

I do find it a bit inconsistent that many of the same salespeople that want you to flatten your network sing the praises of virtual LANs. Somehow they seem to think that the arguments they make in favor of fake LANs do not work with real LANs. But I will admit to having a long-term inability to understand the logic behind sales-speak.

By the way, most of the arguments about a router being a performance problem and a bottleneck are a bit hard to reconcile with the wire-speed performance of many routers. In most environments, latency is far less of an issue than switch vendors would have you believe, and even then, the difference in latency between a modern router and a switch is meaningless when considering overall application-to-application latency.

Bottom line: Think before you assume that pulling routers will produce an easier to manage, faster and more secure network.

If you are interested in two dimensions, you may want to peruse http://www.inform.umd.edu:8080/EdRes/ReadingRoom/Fiction/Flatland.

Disclaimer: Harvard has a copy of the 1883 Flatland . . . but that does not necessarily imply that Harvard is two-dimensional. Even if it were, these are my opinions.

Bradner is a consultant with Harvard University's Office of Information Technology. He can be reached via the Internet at sob@harvard.edu.

Local Networks

Covering: Operating systems • LAN management
Hubs • Switches • Adapters and other equipment

Briefs

■ **Stratus Computer, Inc.** *this week will announce the new Continuum Series 400 group of* **servers** *targeted for the expanding electronic commerce market.*

The servers are available in several configurations featuring one or two PA-7100 96-MHz chips, with 512K or 2M bytes of cache and 128M bytes of main memory. Stratus has lined up Isocor, Open Market, Inc. and S2 Systems, Inc. to provide electronic commerce software bundled with the hardware. The servers run the Stratus FTX Unix operating system.

The Continuum Series 400 servers will ship in June, and prices start at around $66,000.

Stratus: (800) 787-2887.

■ *The* **Desktop Management Task Force** *announced Version 2.0 of its* **Desktop Management Interface** *specification last week at its annual conference in Orlando, Fla.*

Included in this second version is a procedural interface for remote network access and management, as well as an expanded event model so alerts sent from network devices to a management application can be filtered and categorized.

■ **Xedia Corp.,** *a LAN switch vendor based in Wilmington, Mass., last week unveiled software for its* **Ethernet and fast Ethernet switches** *that provides integrated routing. Xedia's IP/Assist will include Dynamic Host Control Protocol for automated IP address allocation, firewalling for Internet security and virtual LAN capabilities. In future releases, IP/Assist will provide IP routing and Layer 3 statistics for troubleshooting. Release 1.0 is priced at $195 and available now.*

Xedia: (508) 658-7200.

■ **Breeze Wireless Communications, Inc.,** *a Carlsbad, Calif.-based* **wireless LAN** *vendor, last week rolled out a new 3M bit/sec wireless Ethernet bridge.*

The BreezeNet bridge costs $1,995 and is available now.

Breeze: (619) 431-988

Fast LAN gear craze a sure bet at Interop 96

Network Peripherals, Intel, HP and Newbridge plot demos.

By Jodi Cohen

A quartet of LAN vendors flooded the market last week with new fast Ethernet and Asynchronous Transfer Mode gear that will be displayed at next month's NetWorld+Interop 96 trade show in Las Vegas.

NETWORLD INTEROP PREVIEW

Network Peripherals, Inc. (NPI), Intel Corp. and Hewlett-Packard Co. separately rolled out 100M bit/sec hubs and switches, while Newbridge Networks, Inc. unveiled a new version of its VIVID software for routing LAN traffic over ATM nets.

For NPI, the fast Ethernet market is new territory. Its NuSwitch suite of 100M bit/sec devices for LAN backbones and workgroups provides a mix of server and desktop connections. Previously, NPI offered mainly FDDI hubs and switches.

What's hot at Interop

Vendor	Product	Price	Availability
HP	AdvanceStack 100VG hubs	Start at $999	June
Intel	Express fast Ethernet switch	Starts at $4,995	April
Network Peripherals	NuSwitch fast Ethernet workgroup switches	From $115 to $750 per port	June
Newbridge	VIVID 2.0 MPOA software	Free upgrade for existing customers	April

The company sprayed the market with two 100M bit/sec switches, six 10M/100M bit/sec switches, one 10M/100M bit/sec switch, a 100Base-T repeater and a 10M/100M bit/sec PCI adapter.

Analysts said the variety of products is the key to NPI's rollout. For example, the store-and-forward switches offer customers up to 12 switched 10Base-T ports and as many as five fast Ethernet uplinks. Also, the company's pure 100M bit/sec switches come in six- or 12-port versions, and all of the devices come in managed and unmanaged models.

"The fast Ethernet market is just starting to take off big time, and we're seeing a lot of commoditization in that marketplace," said Trudy Barker, an analyst at Dataquest, Inc. in San Jose, Calif. "So vendors must have a full range of options available as well as aggressive pricing, as NPI does."

Barker added that by offering so many boxes with different port densities, NPI lets customers buy exactly what they need and not pay for extras — such as sophisticated management — that they do not plan to use.

The NuSwitch products are priced starting as low as $115 per port and will ship by this summer.

Fast Ethernet frenzy

Intel rolled out its first 100M bit/sec switch, rounding out its portfolio of fast Ethernet adapters and hubs aimed at the workgroup.

The Intel Express 100Base-T store-and-forward switch, which the company resells from NBase Switch Communications, features five fast Ethernet switched ports and two slots for fiber or copper 100M bit/sec uplink modules. The device is designed to provide dedicated links to shared workgroup hubs, servers and high-performance desktops.

The switch, which is priced starting at less than $1,000 per port, supports a flow control feature that prevents packet loss. Also, the device can be managed via any Simple Network Management Protocol-compliant management application.

Separately, HP demonstrated its commitment to 100VG-AnyLAN — the company's preferred 100M bit/sec LAN technology — with the rollout of three new AdvanceStack workgroup hubs.

The AdvanceStack 100VG Hub-14 provides 12 fixed 100M bit/sec ports and two slots that can support fiber modules for extending the distance between another hub or switch. The hub, which can be used to interconnect both Ethernet and token-ring workgroups, also has a rear expansion slot to add SNMP, routing or remote access modules.

In addition, HP rolled out two seven-port hubs, including the AdvanceStack 100VG Hub-7M, which offers the same features as its 14-port big brother but for smaller workgroups. The AdvanceStack 100VG Hub-7E is designed for small stand-alone workgroups that require high-speed connectivity.

The HP announcement shows that the company is still committed to 100VG-AnyLAN technology, Barker said. "VG is not dead, and it will continue to serve a niche part of the market. So far, the VG hub market has reached over $5 million in revenues worldwide," she said.

New from Newbridge

On the ATM front, Newbridge made good on its promise to let customers route legacy LAN traffic over ATM networks

See Craze, *page 24*

Network World Fusion MORE ON-LINE

Download fast Ethernet primers on Network World Fusion. Select News+ then Local Networks.

▶ http://www.nwfusion.com

LANshark takes a bite out of users' increasing fax costs

By Kevin Fogarty
Chicago

LANshark Systems, Inc. has released fax server software designed to save companies money by reducing the number of toll calls needed to send faxes internally.

ABUI

The company's Sharkfax offering, which runs on Banyan Systems, Inc. VINES and Enterprise Network Services networks, was introduced at the Association of Banyan Users International conference here last week.

The product can save customers money thanks to its TollSaver feature, which routes faxes across private WAN links where possible, according to Scott Sharkey, president and chief executive officer of LANshark. The goal is to use comparatively expensive dial-up connections only for local calls.

"If you are a multinational with a WAN, having a product like Sharkfax may be a way to lower your costs," said Mark Levitt, an analyst with International Data Corp. in Framingham, Mass.

"It sounds unique to me in VINES, but a few products, like [those from] Open Port [Technology, Inc.], use intelligent routing over WANs, as well," he said.

Sharkfax employs the VINES StreetTalk directory in conjunction with its own Phone Book to determine whether a fax destination is within the sending organization and how to find a Sharkfax server near the destination.

It also uses Intelligent Messaging 3, the electronic mail backbone technology in VINES, to route inbound faxes by E-mail.

Users can send faxes to the Sharkfax server from an E-mail or other Windows mail application.

"The good side of this product is its use of StreetTalk. The negative side is that it's for VINES and the world of VINES is shrinking," Levitt said.

The product supports as many as 32 fax lines per server. Sharkfax costs $8,500 per server, but it will be discounted to $7,850 until July 1.

☎ LANshark: (614) 751-1111.

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WIRED WINDOWS

Can I see your license please?

Software licensing. Those are two words that make a lot of network administrators cringe.

And a recent Supreme Court ruling should have sent you scurrying to find the license agreements for all of your software to see if, despite your best efforts, you are still in violation of them.

The court upheld a lower court ruling in favor of Triad Systems Corp., a vendor of customized computer systems for auto parts stores. In essence, the Triad license agreement allowed only the owner of the license to run the software. Anyone else attempting to run the program was violating the copyright by making an illegal copy of the software in the PC's RAM.

Dave Kearns

What this means is that the fancy software metering application you purchased may not be keeping you legal if the license for the software does not specifically include language allowing concurrent usage. While much of today's software is licensed for concurrent usage — if you have five licenses, no more than five people can run the software at the same time, with no limit on the actual people running it — you cannot assume that this is true for all software.

As an example, let's look at Quarterdeck Corp.'s CleanSweep 95, an excellent product for tracking installation of Windows 95 software so it can be completely removed should you wish to no longer use the application. Additionally, it will track file access and help you identify rarely or never-used files.

Another useful feature is the ability to move an application from one area on your computer to another — another directory, partition or disk. All in all, it is a good addition to your tool bag for managing Windows 95.

But the CleanSweep 95 license agreement states: "This software is intended for use by the original purchaser only and for use on a single machine. . . ." This sounds very much like the sort of language in the recent court case.

Presumably, if I let my assistant use my computer to install a software package, I'd have to disable CleanSweep 95's Installation Monitor beforehand. The agreement does allow me to have up to three backup copies of the software, provided that "all the information appearing on the original disk labels (including the copyright notice) must be copied onto the backup labels." Calculate how much time this would take if all of your software licenses required it.

A few years ago, Novell, Inc., Microsoft Corp., Banyan Systems, Inc., IBM and other software vendors agreed to develop a common licensing API for networks to ease the implementation of software metering and remove some of the burden from network administrators. Unfortunately, nothing's happened since that initial press release. So the burden is still on you to ensure that your company is in compliance with its software licenses.

Let's hope you kept that license agreement on file. If not, be prepared for a lively game of telephone ping-pong if you call the vendor. In fact, I'd suggest going to a software retailer and reading the license there. You might even have to buy another license if you've thrown yours away.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at dkearns@msn.com.

TIP OF THE WEEK

Check your version of NetWare's NCOPY utility. It seems that Version 3.75PTF, dated Oct. 28, 1993, and with a size of 128,447 bytes, has a slight bug in it that generates more network traffic than the DOS COPY command. If you have this version, upgrade or downgrade your copy to improve performance. Thanks to Joe Doupnik and John Baird for tracking this down.

NET RESULTS

All eyes are on the workgroup LAN market

The LAN hardware market bifurcation process is nearly complete.

First, you have the multibillion-dollar internetworking firms — the haves — which keep acquiring smaller firms to build enterprise-level product portfolios. Then you have those without campus backbone offerings — the have-nots — which are getting ready to blow the lid off the huge market for workgroup LANs.

Skip MacAskill and Melinda Le Baron

Long considered by the big boys as a mere adjunct to a comprehensive enterprise solution, the workgroup LAN market is finally getting the attention it deserves from vendors.

This trend is great news for small office, workgroup and departmental users because it dramatically increases their product choices and provides more comprehensive and sophisticated technology solutions — all at a pretty good price.

In the not-too-distant past, building a workgroup LAN meant picking the right hub. Today, however, the workgroup user has nearly as many technology choices and configuration schemes to pick from as the enterprise manager. Choices include switches, routers, Asynchronous Transfer Mode gear and network management.

New opportunities in this market opened up when the traditional leaders in this space — SynOptics Communications, Inc., Hewlett-Packard Co. and 3Com Corp. — began to divert some of their attention to the enterprise market. Of those three, HP has made a clear decision to go back to its roots and refocus on the workgroup market.

We could argue that the first vendor to embrace this back-to-basics approach was NetWorth, Inc., which decided over a year ago that its foray into the enterprise market was not in its best long-term interests. By refocusing its efforts on the area where it was strongest — stackable workgroup hubs and switches — NetWorth got back on track and attracted a suitor in Compaq Computer Corp.

Compaq represents a new breed of vendor making a strong play in this workgroup LAN area. Call it the bottoms-up view. Since the server is such a critical component in these workgroup LANs, Compaq figured it could leverage its presence in these areas and open up some new revenue streams.

One of Compaq's rivals, Intel Corp., already has a strong hand to play in the workgroup market with its silicon, server and adapter lines. It's now looking to further that reach by aggressively marketing its fast Ethernet technology to those users and working with Cisco to bring virtual LANs to the server level. This is not to say that the biggest internetworking vendors don't have any say in the workgroup. Firms such as Cisco and Cabletron Systems, Inc. have good product lines at that level. What they don't have are the right sales and distribution channels.

The barriers to entry in the workgroup market are a lot lower than on the enterprise side, where only a few select vendors can realistically compete. So expect more activity from a large number of vendors in this area during the course of the year.

Le Baron is a research director and MacAskill a senior research analyst in Gartner Group, Inc.'s Network Computing Infrastructure group. Contact them by E-mail at inquiry@gartner.com or call (203) 316-1111.

BusinessBriefs

Well, at least all those Novell, Inc. refugees seem to be landing on their feet. **Richard King**, formerly executive vice president and general manager of **Novell's NetWare Products Group**, has signed on as chief executive of Night Technologies International. The Provo, Utah-based company makes preamplifiers and other high-tech sound equipment for professional recording studios.

Losier

New **Tandem Computers, Inc.** President and Chief Executive Officer **Roel Pieper** has hired **John Losier** to oversee a new business unit focused on all of the company's service activities. Losier joins the company as senior vice president of worldwide sales and services from Bell Atlantic Corp., where he was president of large business services and chairman of the carrier's net integration subsidiary.

LAN switch maker **Xylan Corp.** last week announced its initial public offering and the trading of 4.2 million shares of common stock on NASDAQ under the symbol XYLN. The stock opened at $26 per share. The offering was lead-managed by Morgan Stanley & Company, Inc.

Craze

Continued from page 21

using the ATM Forum's emerging Multiprotocol Over ATM (MPOA) spec. VIVID 2.0, available next month, will distribute routing functionality across the firm's LAN-to-ATM switches and a route server to allow users on different subnets to communicate over an ATM backbone.

Paul Krystosek, a computer network engineer at Argonne National Laboratory in Argonne, Ill., said that MPOA gives him the ability to tailor networking services based on a user's address and avoid clogging the net with unnecessary traffic. "For us, LAN emulation is not a viable solution because we do not want video mulitcasts being blasted out to places where they don't need to be," he said.

VIVID 2.0 offers automated net configuration functions including logical address tracking, which cuts the cost and time associated with adds, moves and changes by freeing addresses from a single physical port. It will be available to existing customers as a free software upgrade.

& NPI: (408) 321-7300; Intel: (800) 538-3373; HP: (800) 533-1333; Newbridge: (800) 368-4843.

COMMENTS?

See "How to reach us" on page 6.

Client/Server Applications

Covering: Databases • Messaging • Groupware
Conferencing • Imaging • Multimedia • Development

Briefs

■ **Versant Object Technology Corp.** *of Menlo Park, Calif., this week will announce* **Java Interface** *for its Versant object data base management system and Versant Internet Adapter, a set of database extensions to support Web applications. Java Interface, which will let users manage and store Java applets using Versant's object database, is due next month. Versant Internet Adapter, available free to Versant customers, will ship in the third quarter.*
Versant. (415) 329-7500.

■ **Information Builders, Inc. (IBI)** *of New York last week announced Web3270, a software gateway for linking* **MVS mainframe applications** *to the World-Wide Web, that lets users choose a 3270 emulation or an Internet browser interface. Web3270 resides on the mainframe. It is available free of charge. The company also announced Web390, a full scale Web server for MVS. That offering is expected in the second quarter. Pricing was not available.*
IBI: (212) 736-4433.

■ **Micro Logic Corp.** *of Hackensack, N.J., last week announced SuperChat, a* **real-time workgroup messaging system.** *The Windows-based software lets users interact via PCs significantly faster than with most popular electronic mail systems, according to the company. Available now, SuperChat costs $99.95 per user*
Micro Logic: (201) 342-6518.

■ **Oracle Corp.** *of Redwood Shores, Calif., last week announced plans to add application partitioning capabilities to Version 1.3 of its* **Developer 2000 application development tool,** *which is due next month. The company will let developers use either transaction processing monitors or Distributed Computing Environment based middleware to manage the partitioning of applications.*
Oracle (415) 506-7000

Neuron tool kit brings together varied objects

By John Cox

Mountain View, Calif.

Neuron Data, Inc. has released a new version of its object-oriented development tool set that will let software components created with different tools work together over the network.

With Elements Environment 2.0, developers can create client applications that combine components built via the Neuron Data tool with components based on different object models, such as C++, OLE and the Common Object Request Broker Architecture (CORBA).

PLUGGING OBJECTS TOGETHER

Product:
Neuron Data's Elements Environment 2.0

What it is:
An object development tool kit and middleware that let developers combine different objects – OLE, Visual Basic, Elements Environment, CORBA and Java – into a single application.

The release adds an object-oriented scripting language, called OOScript. The language works with Neuron's second innovation, the Interoperable Objects Element (IOE), which is a set of class libraries plus software drivers for calling objects outside an Elements Environment application. Together, OOScript and IOE mask the differences among objects.

Initially, Release 2.0 will let Elements Environment objects work with OLE Automation Servers and any OLE objects. Neuron Data will add support for Java and CORBA later this year.

Distributed support will initially be offered by the Elements Environment middleware and later by CORBA object request brokers and, eventually, Microsoft Corp.'s Network OLE.

Elements 2.0 will be available first on Solaris, HP-UX, Windows NT and Windows 95.

The Early Developers Release will ship by March 31 with support for OLE. Pricing starts at $9,600.

☎ Neuron: (415) 528-3450.

Vendors revise document mgmt. wares

By Barb Cole

Two companies this week will announce new versions of their document management systems aimed at making it easier to deploy the software across the enterprise.

Pleasanton, Calif.-based Documentum, Inc. will roll out Release 3.0 of its Documentum Enterprise Document Management System, which now includes replication services, a server-based scripting language and a revamped user interface.

Separately, Uniplex Software, Inc. in Folsom, Calif., will take the wraps off OnGo Document Management System 2.0, which now features software agents that automatically notify users of changes in documents.

Document management systems store and organize unstructured electronic documents as well as meta data about them. By the end of the decade, document management software will be found on every user's desktop, according to Carl Frappaolo, senior analyst at Delphi Consulting Group in Boston.

Documentum Release 3.0 is aimed at mass deployment, said Larry Warnock, director of market development at Documentum.

To that end, the software's new replication services can copy document objects, called Docobjects, across multiple document management servers. In addition, users will be able to replicate not only documents, but also annotations.

Previously, users could manually copy documents between servers but not the associated document meta data. What's more, users can now set up replication rules based on core business processes. For instance, when a document has been approved, the software can replicate it to appropriate sites across the enterprise.

The software's user interface also has been redesigned to more closely comply with the look and feel of Windows and Macintosh operating systems, Warnock said.

New versions on the way

Product	Platforms	Pricing	Availability
Documentum 3.0	Windows, Macintosh and Unix clients; Unix and Windows NT servers	$150 to $500 per seat	Now
Uniplex OnGo 2.0	Windows clients; Unix and Windows NT servers	$650 per user	Q2

The new version also includes Docbasic, a Visual Basic for Applications-compatible language for building server-side applets.

Uniplex's new client and server document management software offering is also aimed at moving document management beyond departmental boundaries.

The company's second version of OnGo has an Active Information Manager that delivers new information to interested users as it is added to the system.

A notification monitor tells any interested end user connected to a company's electronic mail system when a document changes or becomes available for circulation.

"The proactive notification got our attention because it's not complex to implement and it's well-integrated with the [E-mail system's] directory service," said Francois Koutchouk, general manager at Atlantic Decisions, a groupware consultancy in Pacifica, Calif.

☎ Documentum: (510) 463-6800; Uniplex: (916) 985-4445.

Lotus reorganizes around core products

By Carol Sliwa

Cambridge, Mass.

Lotus Development Corp. is ditching the partially adopted business unit plan created last spring by former CEO Jim Manzi in favor of a more consolidated approach.

Lotus' *Sayre will oversee marketing.*

According to a company spokesman, the old model called for four business units: desktop, communications, services and inter-enterprise computing. The new model has three divisions: cc:Mail, SoftSwitch and "everything else," he said.

"There will always be debates about the best organizational structure, but it's clear that the drive to a pure business unit organization wasn't completely possible when Lotus was a stand-alone organization with a single sales force, and is even more problematic as part of IBM," a memo from the office of the president states.

SoftSwitch and cc:Mail — formerly in the communications unit — each will have its own general manager as well as product management and marketing teams. The "everything else" unit includes Notes, Components, SmartSuite, calendaring and Internet products.

Steve Sayre, formerly the vice president overseeing marketing for the communications unit, will be responsible for product and corporate marketing companywide.

In connection with the reorganization of marketing, the product management teams are being realigned with their respective development teams.

The company spokesman said he does not know whether the consolidation was prompted by the continuing exodus of Lotus executives since IBM acquired the company last year. Many of the recent defectors have jumped ship to Manzi's Industry.Net, based in Pittsburgh and Boston. ■

Network World Fusion
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Read articles on efforts to develop document management interoperability specs. Select News+ then Client/Server Applications.

SHARED LOGIC

Where does Notes go from here?

The autopsy for AT&T's Network Notes is over, and the cause of death is clear: customer disinterest.

Potential customers of the electronic commerce and public groupware chose the World-Wide Web, rejecting the proprietary on-line network concept.

And AT&T got the message. By refocusing on its new Internet access and Web services, the carrier did what it had to do.

What about Lotus Development Corp.'s Notes, the product at the heart of the service? Is the Web killing Notes?

In his editorial two weeks ago (March 4, page 42), *Network World* Editor in Chief John Gallant addressed this issue by arguing that Notes' future lies on the enterprise intranet. There, he said, it can provide groupware capabilities such as electronic mail, document sharing, discussion databases, workflow, application development and access control.

While Web groupware packages can provide these capabilities in theory, none of them is nearly as comprehensive as Notes.

I agree with those thoughts. But another Notes strength stems from this: The Web may be the universal front end, but Web standards leave the back end wide open. Any package can become a Web server application.

"If I say I'm a Web server and support HTTP on the wire, I am a Web server," declared Mike Zisman, Lotus' chief executive officer, at a Lotus strategy briefing well before the announced demise of Network Notes.

Lotus has moved to embrace and extend the Web, building browser support into the Notes client and Web gateway support into its server. This summer, Lotus will go further, supporting dynamic conversion between Notes documents and HTML. To its credit, Lotus is about six months ahead of groupware competitors such as Microsoft Corp. and Novell, Inc. in this respect.

The Lotus pitch is that Notes servers will become popular Web servers because they already have most of the accessories — including forms designers and SQL gateways — that are needed for two-way interaction with users, distributed authoring, linkage to enterprise databases and content management.

Daniel Blum

"We're in better shape than other vendors who will have to build what already exists in Notes," Zisman remarked at the briefing.

This may all be true, but Lotus still has to be worried.

Selling Web servers in an environment where browsers are given away is a tougher business proposition than having a lock on groupware and selling Notes desktop licenses to a captive audience. Suddenly, groupware is more of a level playing field. Currently, users can pick and choose where to deploy Notes servers. They can choose to access those servers with any Web browser and use the same browser to access other vendors' servers.

Network Notes was born from a vision of groupware, electronic commerce and outsourcing all coming together. It was a bold vision, though a little ahead of its time.

As AT&T and Lotus refocus, the lesson to take from this experience is that implementation in the mass market must be based on real open systems standards, and the Web is the best bet going for open groupware.

No vendor — not AT&T, IBM or Microsoft — can force the world to come to it. Instead, they must come to the world.

Blum is a principal at Rapport Communication, a consultancy that focuses on messaging, groupware and electronic commerce. He can be reached at dblum@interramp.com.

DIRECTIONS

Winning in the Network Computing Era

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AGENDA

MORNING SESSIONS - 9:00-12:15

- Hype, Health, and Heartache in IT and Communications Markets
  Vicki J. Brown, Senior Vice President
- The Era of the Wired Consumer: Discontinuity, Opportunity, Success, and Failure
  Frank Gens, Senior Vice President, Worldwide Research
- The Internet's Impact on Corporate Computing
  David Vellante, Senior Vice President, Systems, Software, & Storage
- Technologies for the Wired Market
  John Gantz, Senior Vice President, Personal Systems and Collaborative Computing

	Session A 1:15 - 1:55	Session B 2:00 - 2:40	Session C 3:00 - 3:40
TRACK 1	Planet PC: The Global Market Perspective Bruce Stephen	Home Computing: Fitting and Creating Demand Richard Zwetchkenbaum	Mobile Computing and Communications in the Connected Age Randy Giusto • Michael French • Iain Gillott
TRACK 2	Cyberbucks: Mass Market Retailing Gigi Wang	Application Hosting in the Cyber Millennium Mark Winther • Michael Sullivan-Trainor	CyberAge LANs Lee Doyle
TRACK 3	Systems & Server Market Dynamics Jay Bretzmann	Will Intel Own the Workstation Business? Dr. Thomas Copeland	Internet Servers of the 21st Century Susan Frankle • Mark Winther
TRACK 4	Opportunity in Networked Software Dr. Anthony Picardi	Where's the Leverage: Database or Applications? Clare Gillan • Dan Kusnetzky	Can Netscape Break Microsoft's Stranglehold? David Card
TRACK 5	Developing Channel Partnerships for Superior Service Delivery Traci Bair	Marketing Desktop Services: Hidden Costs No Longer Hidden Kurt Johnson	Distribution in the Era of the Electronic Marketplace To Be Announced
TRACK 6	Worldwide IT Market Outlook Philippe de Marcillac	Network Computing Challenges in Latin America Paul J. Pastrone	IT Market Restructuring in the Asia/Pacific Region Davis Blair

CLOSING SESSION - 3:55 - 4:40

- Industry Call-To-Action
  Dr. Robert Metcalfe, Vice President of Technology, IDG; Inventor of Ethernet

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Lotus works to overcome limited Notes development capabilities

Customers doing fine with existing tools, but they are ready for more robust ones.

By Paul Korzeniowski

Lotus Development Corp.'s Notes has emerged as the Poster Child for collaborative computing even though the product's application development capabilities have been relatively limited.

Most popular programming tools, for example, do not take advantage of Notes' replicated databases. And few high-end programming products, such as computer-aided software engineering tools and software for building on-line transaction processing applications, run with Notes.

Lotus' *Neihaus admits building Notes applications from scratch has not been easy.*

Yet the voids have not deterred corporations from deploying Notes applications. Instead of relying on traditional programming tools, companies have turned to Notes' inherent programming capabilities, third-party add-ons and outside consulting services to construct their applications.

Notes offers programmers a simple way to build networked applications. The product features fill-in-the-blank templates so programmers and even end users can quickly design simple application systems, such as group discussion bulletin boards.

Moving mainframe applications

The quick application development attracted Siemens Electromechanical Components, Inc. of Princeton, Ind. In early 1995, the firm began examining ways to move engineering applications off its IBM 3090 mainframes. Six thousand employees stationed in four U.S. locations, two sites in Mexico and one office in London relied on the applications to check the progress of change orders, which relayed engineering and manufacturing alterations to all locations.

The mainframe applications were difficult to alter and offered users limited help when monitoring changes. "A work order could sit in the system for two years without being completed," noted Robert Jenkins, manager of networking and telecommunication systems at Siemens Electromechanical.

Delays arose because the system lacked an inherent mechanism that highlighted incomplete work orders. Also, the application did not present change information to users in an easy-to-follow fashion so they often refused to navigate their way through the system.

Rather than house the data on mainframes, the company wanted to push information down to departmental servers and user desktops. Jenkins determined that Notes was best suited to the collaborative computing the application needed because it offered true client/server capabilities.

Also, Notes' communications infrastructure would be less expensive than alternatives. The Lotus product would relay updates only when changes were made so Siemens Electromechanical could install dial-up lines rather than acquiring more expensive leased lines.

The company overhauled the change order system in a few months. Development with traditional mainframe programming tools would have taken years, and the resulting application would not have come as close to meeting user expectations, according to Jenkins.

The differences arise because Notes enables developers and end users to share information. As soon as a programmer completes a prototype, he can hand it over to end users for input. Changes can be made more quickly and easily than with mainframe applications. These capabilities reduce the amount of time needed for development and help to eliminate design problems.

Siemens Electromechanical tied its work order application to a workflow system, so users are automatically notified when change orders lie incomplete. The company has cut the average time needed to process a work order from eight or nine months down to four to six weeks.

Customers large and small

Smaller companies also have found Notes to be a strong application development platform. The number of employees at Collegiate Health Care Co., a Norwalk, Conn.-based start-up, rose to double digits last year, forcing the company to design a network infrastructure.

Seth Klion, chief information officer at the company, had previously worked with Notes and felt the product could help the firm keep the organization flat. "We didn't want to build a lot of bureaucracy, and Notes helps employees communicate directly," he explained.

Lotus *has been improving LotusScript to make Notes development easier.*

Rather than hire programmers, the company decided to outsource application development and hired NetImage, Inc. in Brookfield, Conn.

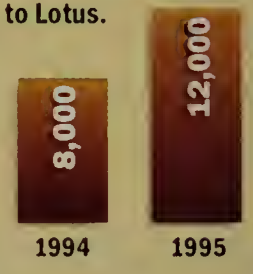
NetImage helped Collegiate Health Care build a health clinic management application, while the health care company went to U.S. Technologies Inc. in Tampa, Fla., to link accounting information to Notes.

Making development easier

Not all companies want to work with third parties; some may prefer to build applications the old-fashioned way — from scratch.

But even Alex Neihaus, a senior marketing manager at Lotus, admitted that has not been a Notes strong point. "Historically, corporate programmers had to drop down to C to complete their applications," he said.

The number of Notes third-party developers grew from 8,000 in 1994 to 12,000 last year, according to Lotus.



Problems arise because almost no third-party visual programming tools take advantage of Notes replicated databases. In most cases, a programmer has to link a tool to Notes. Because the work is complex, firms would rather not take it on.

Lotus has tried to aid companies that want to build applications from the ground up. The company delivered Notes HiTest Tools for Visual Basic, which offers developers an API between Notes and the Microsoft Corp. development language.

Lotus also developed the VIP programming language, which takes full advantage of Notes. But product sales were weak. Lotus sold only 6,000 VIP developer licenses. In September, Lotus sold VIP to Revelation Software, Inc., a Stamford, Conn.-based firm with a series of test development tools.

James Acquaviva, Revelation's president, said problems arose because Lotus' sales strategy was geared to end users, not developers. Also, developers could design applications only on Windows operating systems and run them only on Windows and IBM's OS/2 operating system. Because Revelation has always focused on selling to developers, Acquaviva expects to double the installed base of VIP customers in the next 12 to 24 months.

But that goal may not be realistic. Corporations have typically used programming tools for high-volume transaction processing applications, which are not a good fit for Notes. To achieve its flexible replication capabilities, Lotus sacrificed performance. Consequently, companies find relational databases are better suited to transaction processing applications than Notes.

"Lotus has been trying to improve Notes so companies can use it for more sophisticated applications," said Matt Cain, an analyst with META Group, Inc., a Stamford, Conn.-based consulting firm. Notes 4.0, which shipped in January, boasts performance improvements of up to 1,000%.

In addition to unveiling Notes HiTest Tools for Visual Basic, the company improved LotusScript, a BASIC programming tool, and added InterNotes Web Publisher so companies can build Internet applications with Notes.

The improvements come at a time when Notes faces increased competition. Because of the growing emphasis on the Internet, developers are now comparing Notes to Internet tools, such as Sun Microsystems, Inc.'s Java programming language. Recently, there has been a great deal of speculation that these tools will knock Notes from its perch.

Lotus' strategy is to co-opt rather than compete with the Internet tools. Notes 4.0 included World-Wide Web programming functions. Longer term, the company plans to provide links from Notes to Java.

Korzeniowski is a freelance writer in Malden, Mass., who specializes in networking issues.

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Briefs

■ **Isocor** *this month will unveil World Wide Web server software that includes an* **X.400 mail proxy** *for companies that have adopted Open Systems Interconnection-based messaging as a corporate standard.*

Isocor: (310) 581-8100.

■ *A dozen hotels, including Hyatt Hotels and Resorts, Ramada Franchise Systems and Best Western International, last week introduced a* **Web site that offers information about 7,098 individual hotels.**

■ **BDM International, Inc.** *and* **Data General Corp.** *have teamed to develop a secure Unix server called Cybershield that can filter out content based on keywords or file types to* **prevent confidential information from unauthorized distribution** *outside the company. The Cybershield server also does virus filtering and works with dynamic-password systems for ensuring authorized entry to intranets.*

BDM International: (703) 671-1571; DG: (508) 898-6546.

■ *Browser plug-in applets that support* **real-time collaboration** *over the Internet recently were announced by* **Farallon Computing, Inc.** *of Emeryville, Calif. Look@Me draws on the Observe function in Farallon's Timbuktu Pro communications software, enabling a user to view a remote user's screen via the Internet. FlashNote resembles Timbuktu Pro's Send function, enabling Internet users to exchange files and short messages directly, without going through mail servers and gateways. The applets run under Microsoft Corp.'s Windows 3.X and Windows 95 and work with Netscape Communications Corp.'s Navigator and NetManage, Inc.'s WebSurfer browsers. They are downloadable free from Farallon at http://www.farallon.com; the full functions are available in Timbuktu Pro Windows, which costs $49.95 by electronic download.*

Web conferencing service debuts

By Joanie Wexler
Los Altos, Calif.

The World-Wide Web continues to expand and can serve as the launch point for multipoint document conferencing sessions.

Future Labs, Inc. this week will announce Internet TalkShow, a data conferencing service that allows those with a PC, modem and Internet browser to use Future Labs' home page to set up a collaborative session.

Future Labs combines whiteboarding and application sharing. Whiteboarding allows collaborative work on a document, but with no export capabilities back to a user's PC. Application sharing, on the other hand, allows users to archive document changes

ON-LINE

The Internet already boasts a bevy of low- or no-cost collaborative tools. Get more info about them on Network World Fusion. Select News+ then Electronic Commerce.

http://www.nwfusion.com

Netscape model

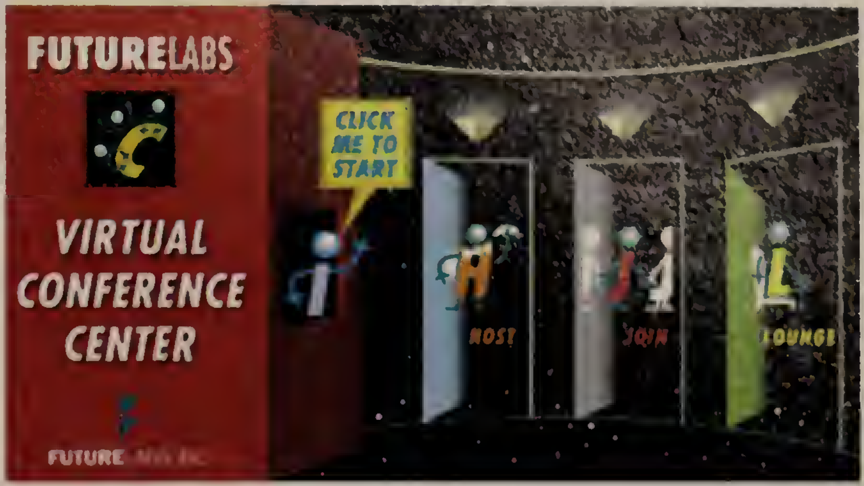
The Future Labs distribution model parallels that of Netscape Communications Corp.'s Navigator browser. The service will be free until July; users simply download their client software from Future Labs' home page (http://www.futurelabs.com).

After July, Future Labs will charge $48 per year for unlimited use of its Web server as the conference bridge, said John Chua, president of Future Labs.

The conferencing application networks as many as six PCs or Macintosh computers.

The audio portion of the conference uses a separate telephone line supplied by Sprint Corp. This way, bandwidth bottlenecks on the unmanaged Internet remain at bay, Chua explained.

A server-based solution for corporate intranets will be launched in the second quarter and cost $2,500, he said.



Future Labs *puts a pretty Web face on data conferencing.*

A key advantage of the Web-based service over WAN-based conferencing is that users do not have to know and enter IP addresses. The conference host calls up the Future Labs Conference Center Web site and establishes the conference name and password. Conference participants then call up the site via their browser, click on the correct conference from a list and enter the password.

The setup helps participants get over technophobia, said Hermann Novak, president of Associated CAD Services, Inc., a nationwide drafting company headquartered in Burlingame, Calif.

The company is using TalkShow — a non-Web-based version that allows point-to-point sessions only — and is planning to use the Internet version for collaborating on drawings across distances. "This is like E-mail — you dial up the address and you're in," he said.

Novak said there is growing pressure by clients for on-line conferencing capabilities, particularly those that can handle massive drawings. Those who grew up in the computer era are demanding their business partners get on-line and are refusing to make trips to collaborate on documents, he said.

Novak said that he has had trouble with lockups and long regeneration times with other conferencing systems when sharing files over about 1M byte in size.

He said the Future Labs service is the only one that did not pose that problem.

Other users, though, are still skittish about the unpredictable nature of the Internet.

"We'd rather rely on the telephone network because we can depend on the bandwidth being there," said Wayne Utke, computer audiographic specialist at the University of Wisconsin in Madison, who has beta tested Internet TalkShow. The school uses other Future Labs products for distance-learning applications.

Plus, not all of the school's clients have Internet access. "But for some people looking to avoid telephone charges, this could be for them," Utke said. ■

Syndicator builds audience on-line

By Peggy Watt
Shawnee Mission, Kan.

A successful business knows to satisfy its target customers, but it's the really savvy outfit that embraces new technology to build — and hit — a bigger target.

Family Features, Inc. for 23 years has supplied syndicated features to newspapers throughout North America. Every week, the company routes recipes, packaged features, household hints and four-color, camera-ready art to newspapers. The content comes from food service organizations ranging from the National Pork Producers Council and Washington Apple Commission to Pillsbury Co. and Reynolds Metals Co.

But it was not until the emergence of the World-Wide Web that Family Features realized it had the bait for a much broader, new audience.

"We realized we could build a whole new community," said Nancy Parsons, vice president and marketing director.

To hit the Web running, the 27-person staff acted fast. They brainstormed and Web-surfed, and then designed a graphical, easy-to-navigate bulletin board system populated with resources drawn from the company's current content providers. The result is Culinary CyberCity, which users enter at a Main Street lined with businesses. Each on-line building contains articles and illustrations that can be downloaded and used in newspapers.

Although Culinary CyberCity is a subscription service, Family Features reached out to more than its traditional newspaper editors for cybervisitors.

HOT OFF THE PRESSES!

Family Features shoots syndicated newspaper copy over the Web. Material focuses on food and household hints.

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- Quaker Oats
- National Potato Board
- Borden

"The Culinary CyberCity is open to everyone in the food world," Parsons said.

The company announced its new service to editors late last year; 290 publications requested the software in the first two months.

Some 200 food service organizations and corporations are clients in the Family Features core business, providing syndicated editorial material. Almost one-quarter of them already have contracted as on-line content providers. "Some are going to wait and see, but others understand the value right away," Parsons said.

Family Features also generates extensive results-tracking for Culinary CyberCity content providers. Each gets a monthly report, noting editors (by publication) who view or retrieve the material. ■

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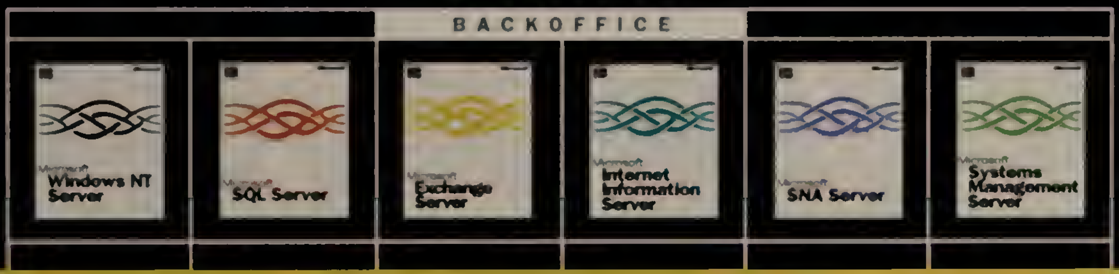
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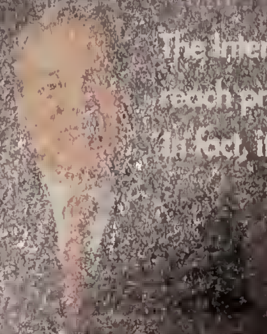

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Occasionally, readers write to us with questions or post queries on Network World Fusion's Help Desk Conference but find the answers before we do. Here is an example:

Recently Brett Stuart, supervisor of LAN operations for ALLTEL Corp. in Little Rock, Ark., told us that making a change to his Madge Networks, Inc. FDDI network interface cards (NIC) solved a ring operations problem. He says that about every seven days, the FDDI ring would go into a high rate of ring operations/transitions between the primary and secondary ring.

Originally, his Novell, Inc. NetWare 3.X and 4.X servers used 3Com Corp. single-attach station FDDI cards with the latest drivers, but after the problem started, he changed to Madge's dual-attach station (DAS) cards with that company's latest drivers, which were in beta test at the time.

However, the Madge cards did not cycle correctly in DAS mode, appearing to hang up and never reestablish communications.

After considering changing again to Cisco Systems, Inc. DAS cards, Stuart says using the Madge cards in SAS mode finally stabilized the FDDI ring. The network is running fine now except for occasional problems with NetWare Directory Services.

If you have similar experiences to share, post a message to our Fusion Help Desk Conference at http://www.nwfusion.com. Select Forums then Help Desk.

Follow up

After reading how to prevent Microsoft Corp.'s Windows 95 from attaching its own printer job language code to PostScript files destined for a Unix print server (NW, Feb. 19, page 44), a reader told us how to avert a similar problem in Windows NT.

The reader says his Windows NT printer driver was attaching Hewlett-Packard Co. escape sequences to the start of print files. To circumvent the problem, he suggests you go into the printer driver configuration and make sure the page independence setting is checked off.

Updated spec provides standard for remotely managing computers

By Paul Ruocchio

If you want to remotely manage networked computers while complying with industry standards, check out products that support the soon-to-be-released updated version of the Desktop Management Interface (DMI).

Version 2.0 of the DMI specification details a standard way for sending management information from remote devices across the network to a central site. The release also allows managers to define and filter events, such as alarms, sent out by the managed PC products, servers and software.

The Desktop Management Task Force (DMTF), an industry group, plans to release DMI Version 2.0 early next month. The release extends DMI Version 1.0, which established a standard framework for managing networked computers. The DMI is independent of protocol, platform and operating system.

Architectural overview

The DMI architecture includes a service layer, a management information format (MIF) database, a management interface (MI) and a component interface (CI).

The DMI service layer acts as an information broker between manageable products and management applications. The MIF database defines the standard manageable attributes of PC products.

The MI lets DMI-enabled applications access, manage and control desktop computers, components and peripherals, while the CI allows components to be seen and managed by applications that call the DMI service layer. The CI gets real-time dynamic instrumentation information from manageable products and passes it to the MI via the service layer. It shields component vendors from decisions about management applications, protocols and operating systems, allowing them to focus on providing competitive management for their products.

The DMTF technical committee has fine-tuned the original DMI with two enhancements: a procedural interface and a self-describing event model.

Procedural interface

The DMI Version 1.0 uses a block structure interface with a single API.

With this interface, the service layer has to sift through large amounts of indiscriminate data to access required information. What's more, it has been prone to errors.

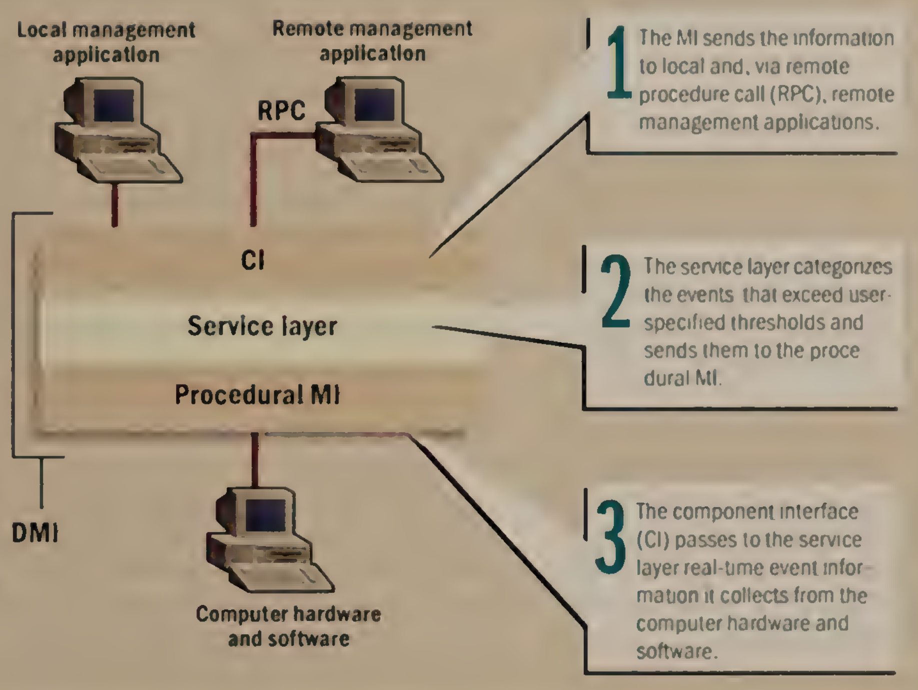
To make it easier for users to extract relevant management information, the DMI now uses a procedural API composed of several discrete functions. These functions can easily be described using the Open Software Foundation, Inc.'s (OSF) Interface Description Language (IDL).

The use of IDL is important because it allows information to be categorized rather than presented in block form. More significantly, it allows an interface to be used with the OSF's Distributed Computing Environment's remote procedure call function. This makes it possible to use the interface for remote management.

UP CLOSE

Desktop Management Interface 2.0 architecture

Release 2.0 of the Desktop Management Interface adds the ability to filter events and changes the block management interface (MI) used in the specification's initial version to a procedural MI, which enables remote access.


Local management application
Remote management application
RPC
CI
Service layer
Procedural MI
DMI
Computer hardware and software

1 The MI sends the information to local and, via remote procedure call (RPC), remote management applications.

2 The service layer categorizes the events that exceed user-specified thresholds and sends them to the procedural MI.

3 The component interface (CI) passes to the service layer real-time event information it collects from the computer hardware and software.

Event model

The DMI Version 1.0 specification incorporates a highly flexible event model. However, two things are missing: a way to describe events and a mechanism for filtering those events before forwarding them to a manager. As a result, management applications receive a plethora of indistinguishable events.

In Release 2.0, the DMI gains the ability to define events within a component's MIF and to set event filters in the service layer. This means managers can establish severity thresholds and determine the types of events for which they receive notification.

Find out more information about the DMTF and its DMI efforts on Network World Fusion. Select NetRef, Technology Resources then Network Management.

Update impact

Desktop operating systems that recognize products that comply with DMI Version 1.0 can accommodate the updates. The DMI's CI is defined such that new code will be required to accommodate Version 2.0 enhancements.

However, the CI changes will not immediately affect the installed base of DMI-enabled hardware, which can still be accessed at the Version 1.0 functionality level by DMI-enabled management applications.

The DMI and MIFs were developed by a cooperative industry consortium with 122 formal members and technical dialogues with more than 350 companies.

The DMTF's leadership includes Compaq Computer Corp., Dell Computer Corp., Digital Equipment Corp., Hewlett-Packard Co., IBM, Intel Corp., Microsoft Corp., NEC Corp., Novell, Inc., The Santa Cruz Operation, Inc., Symantec Corp. and SunSoft, Inc. Version 2.0 of the DMI further extends the work of these industry leaders to make systems and servers better citizens of the LAN.

Ruocchio is a staff programmer at IBM in Research Triangle Park, N.C., and chairman of the DMTF's technical committee. He can be reached via the Internet at par@raleigh.ibm.com.

Need information?

Let *Network World* provide a quick primer on an important or emerging technology. If you have an idea for Technology Update, contact Beth Schultz by phone at (312) 283-0213 or via the Internet at bschultz@nww.com.

EDITORIAL INSIGHTS

This is for your own good

I hate writing about corporate policies, but sometimes you just have to. When a reader sees the words "your company should have a policy on ..." he or she flees in fear — the kind of fear reserved for articles on how much life insurance you need (too much) and what you should be saving for your child's college tuition (way too much).

Well, this is one of those times, so here goes....

Do you have a privacy policy? If you do business on-line — or plan to — you're missing a big opportunity and running a big risk if you answered "no."

In marketing, offering service and support, or selling over the Internet, you can collect lots of interesting information about customers. Using that information wisely will enhance your company's stature and shield you from problems down the road. And the key to wise use is a privacy policy.

Privacy will become a battleground in the months ahead. Companies are building huge databases that track customer demographics, tastes and surfing preferences. Abuses of that information are inevitable, as is a public backlash against invasions of privacy. If your company is caught up in the controversy, your electronic commerce effort will be crippled.

From the ethical perspective (respecting privacy is the right thing to do) to the pragmatic (that respect is a great selling point), tackling the privacy issue today makes good sense. And if enough companies deal with the issue now, we might be able to avoid overzealous government intervention later.

If you make clear to customers why you're collecting information about them and what you plan to do with it, they may feel more comfortable providing the data (or not) and using your on-line offerings. You should also ensure that the policy is clearly understood by all employees so you avoid embarrassing slipups.

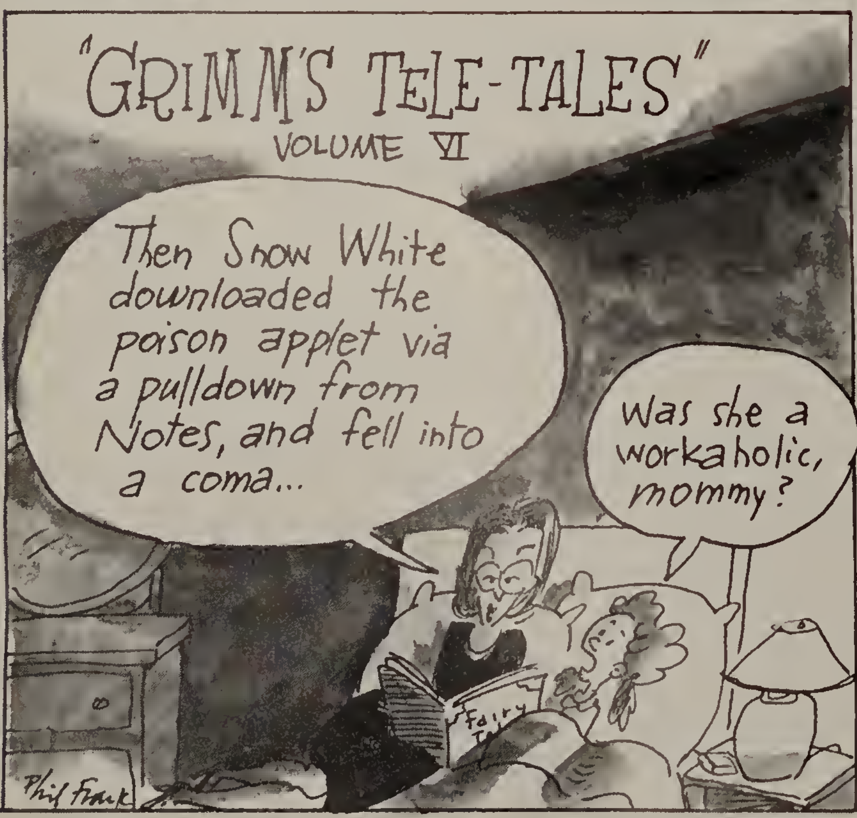
If you'd like additional information to guide the drafting of your privacy policy, I suggest tapping into the Electronic Privacy Information Center's "Online Guide to Privacy Resources" (www.epic.org/privacy/privacy_resources_faq.html). The site details relevant organizations, Internet sites and discussion areas, among other things. It's a good starting point.

OK, end of policy discussion. That wasn't so bad, was it?

John Gallant, editor in chief jgallant@nww.com

Teletoons

By Phil Frank and Joe Troise
guru@well.com


"GRIMM'S TELE-TALES"
VOLUME VI
Then Snow White downloaded the poison applet via a pulldown from Notes, and fell into a coma...
Was she a workaholic, mommy?
Fairy T
Phil Frank

THE BLUE VIEW

CO FRADs should be a quick stop on the road to multiprotocol networking

Anura Gurugé

Central office (CO) frame relay access devices (FRAD) from Hypercom, Inc. and Netlink, Inc., and a native-mode Synchronous Data Link Control service from MCI Communications Corp. have ushered in a new and exciting — but hopefully short — chapter in SNA networking over frame relay.

CO FRADs are a sound and long-overdue technology. They have the potential to significantly reduce costs for both users and frame relay service providers, so they are a genuine win-win proposition. However, instead of facilitating the migration toward SNA/Advanced Peer-to-Peer Networking-capable multiprotocol networking, they could provide SNA users with yet another excuse to persevere with dreaded parallel networks.

CO FRADs eliminate the need for serial FRADs at remote sites. Unlike traditional serial FRADs, which convert data from SDLC, Binary Synchronous Communications or asynchronous format to frame relay format at the remote sites, CO FRADs perform this conversion at the entry point to the frame relay network (hence the term "central office"). MCI and, in time, AT&T and Sprint Corp. will provide their native-mode SDLC support using CO FRADs. CO FRADs can also be used in private frame relay networks.

CO FRADs are a sound and long-overdue technology. They have the potential to significantly reduce costs for both users and frame relay service providers.

With CO FRADs, you can continue to use your existing leased or dial-up SDLC, BSC or asynch lines to access the frame relay network without making any changes whatsoever. And because you will no longer have to install, manage and support hundreds of serial FRADs at remote locations, you'll save money.

CO FRADs enable frame relay service providers to save money, as well. Serial FRADs require the service provider to allocate a port on the frame relay switch for each FRAD. This can become expensive.

With the CO FRAD approach, the serial lines coming into the service provider are terminated at ports on the CO FRAD rather than on the frame relay switch. The CO FRAD, which uses just one port on the frame relay switch, can support hundreds of serial lines.

Freedom from having to amortize the cost of hundreds of serial FRADs means users can quickly migrate to a multiprotocol solution that also supports LAN traffic. SNA/APPN-capable, LAN-centric multiprotocol networking is the strategic future for the IBM community. Less than 10% of the SNA/APPN user base is currently using only SNA/APPN, and even these SNA/APPN-only users typically have both LAN and SDLC traffic. The remaining 90% of the SNA/APPN base now uses protocols such as TCP/IP, IPX/SPX, NETBIOS and Banyan Systems, Inc. VINES, and has SNA/APPN traffic running over both LANs and serial links. The majority of these users are still relying on parallel networks — one network for SNA traffic and another network, usually based on bridge/routers, for non-SNA traffic.

The applicability of CO FRADs, however, is limited to the serial traffic component of these parallel networks. A CO FRAD, per se, does not even support LAN-based SNA traffic unless there is a LAN-to-SNA gateway, such as an IBM 3174 controller, that converts the LAN traffic to SDLC. If a router or even a multiprotocol FRAD, which has both LAN and serial ports, is used at the remote sites to consolidate the SNA/APPN and non-SNA traffic, then CO FRADs are not needed.

CO FRADs are, thus, a double-edged sword to the SNA/APPN community. While they do not address the need for multiprotocol networking, they do enable users to cost-effectively migrate their serial traffic to frame relay until they decide how to consolidate their parallel networks. The native SDLC support CO FRADs provide should be treated as a short-term tactical solution; the strategic long-term goal should be multiprotocol networking using routers or FRADs.

CO FRADs, due to their serial-only nature, also require you to use serial ports on a 3745 or 3746-900 front-end processor to interface the frame relay network with a mainframe. Service providers offer two options for doing this: converting the traffic back into SDLC or using standard RFC 1490 or IBM's Boundary Access Node variant so that up to 200 virtual circuits can be supported across one 3745 or 3746-900 port. If at all possible, avoid reconverting back to SDLC — with SDLC, there is no possibility of multiplexing 200 virtual circuits into a single port.

For sound fiscal and strategic reasons, I am not too keen on using serial ports as the means to interface frame relay to mainframes. A LAN-based interface is generally preferable, especially for multiprotocol solutions.

CO FRADs can also improve response times by blocking 128-, 256- or 512-byte SDLC segments into 2K-byte frames. This reduces the number of frames to be transported and the header overhead at the start of each frame, resulting in better network performance. Users can gain comparable performance increases with routers and multiprotocol FRADs by increasing the SDLC segment size used by their serial SNA devices to 512 bytes or higher.

CO FRADs provide a valuable service. Their only drawback is that they do not cater to multiprotocol networking. In 1996, making the transition to multiprotocol networking should be the primary goal for SNA/APPN users. Thus, if you're contemplating using CO FRADs, you should do so with a firm resolution that this is only a tactical move until you get around to embracing multiprotocol networking.

Gurugé is an independent consultant specializing in internetworking and IBM network architectures. He can be reached at (603) 878-1303 or via the Internet at aguruge@mcimail.com.

TELECOM LEGISLATION

Communications Decency Act is not the end of on-line world

Douglas Welch

While the recently signed telecommunications bill does portend a wide variety of changes for the on-line world, it's important not to overstate the case.

Doom-and-gloom experts are forecasting the demise of the Internet when, in fact, the Communications Decency Act (CDA), like California's Proposition 187, is an unenforceable law as it now stands. Overreaction to it will only play into the hands of those who wish to fool the general populace into believing that Internet users are nothing but oversexed, disaffected fringe members of society who spend all day in front of their computers.

In truth, Internet usage cuts across society and reflects almost every facet of the different cultures, ethnicities and mind-sets that is America.

Grand, vague statements masquerading as laws may please members of Congress and their conservative constituents, but the courts are sure to alter the CDA, perhaps even strike it down entirely. The wording of the law, which includes the term "indecent," will be its undoing.

I know of no two people who can agree on what might be considered indecent. Furthermore, I find it unlikely that the entire country will come to a consensus on indecency overnight while the rest of us aren't watching.

Without a clear definition of indecency, the law is doomed. Cases are sure to be brought to trial, but in reality, Congress has delivered a case that even the finest prosecutors cannot win. You cannot convict someone of a crime unless the courts agree that a crime was committed.

It is my hope that the CDA will be repealed or amended. This would place the responsibility for preventing indecent material from falling into the hands of children squarely where it belongs — with the parents.

We have seen an explosion of software designed to block access to Internet material that parents don't wish their children to see. The market has already provided an answer to parental control, but Congress, in its technological ignorance and election-year posturing, would rather wave the flag than provide a true solution. In an effort to do something, anything, that will help define itself, Congress has, in fact, done nothing.

There is another fallacy involved here. Congress has taken up a number of issues in the last year, all under the banner of protecting our children. I believe this is less a case of protecting our children than of using a convenient issue to shove conservative and controlling legislation down the public's throat.

It is hard to imagine how a Congress that proclaims its wish to get government off the people's backs can pass a law that is so obviously an attempt to control what every American reads, sees and hears. Protecting our children is an admirable goal, but it has been prostituted in the name of the Republicans' Contract with America and a desire to impose their values on the entire nation.

With all this said, though, let's not fall for the doom-and-gloom victim mentality. Protest, surely. Lobby Congress, as we should have done before with more zeal. Take the case to court but have faith that even in today's America, illogical, vague and poorly written laws will not stand.

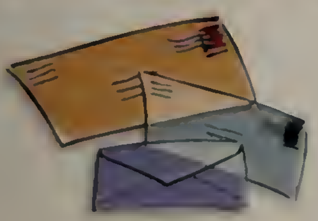
Yes, we need to focus our efforts more closely now, but let's not whine about it. This plays into the hands of members of Congress who want to paint the Internet as a den of depravity so they have some enemy on which to focus for the coming election.

Take the time to find out what the CDA means to you and the on-line community as a whole. The Electronic Frontier Foundation has provided a World-Wide Web site as a clearinghouse for information about the CDA and the various challenges to it. Check it out at http://www.eff.org/blueribbon.html.

The Internet will change; change is inevitable. But we will change with it and come to a far better place long after the CDA is nothing more than a bad memory.

Welch is a freelance writer and director of MIS for a major Internet/on-line service content provider. He can be reached at dewelch@earthlink.net.

MESSAGE



QUEUE

IBM takes exception

Dave Kearns' column "Warp Server is no skin off NT's nose" (March 4, page 30) states that "IBM is virtually a nonplayer in today's LAN marketplace." Nothing could be further from the truth.

IBM is and has been one of the strongest players in the LAN marketplace. LAN Server has an installed base far greater than that of Microsoft NT Server, and from 1994 to 1995, unit sales of LAN Server grew 26%. Furthermore, according to International Data Corp., the combination of OS/2 and LAN Server held 22% of the rapidly expanding application server market in 1995. Obviously, these are not the numbers of a nonplayer in any market.

But if numbers are not enough, witness the industry support for OS/2 Warp Server present at its introduction a few weeks ago in San Francisco. Compaq Computer Corp., Hewlett-Packard Co., Lotus Development Corp., Oracle Corp., Sybase, Inc., Unisys Corp. and Vinca Corp. were just a few of the companies announcing support for OS/2 Warp Server on day one.

The column goes on to say that OS/2 Warp Server offers "little that isn't in NT Server and wasn't in NetWare 2," except for remote control and monitoring. In fact, OS/2 Warp Server provides far more functionality than either NT Server or NetWare because IBM has integrated into the base operating system what Microsoft Corp., Novell, Inc. and other competitors offer as additional products. Besides remote access, this includes systems management, backup and recovery, enhanced TCP/IP support, advanced printing capabilities and LAN Internet access.

It is clear that Kearns' column grossly understates OS/2 Warp Server's functionality and simply ignores IBM's strong position in the server market. It is equally apparent that Kearns made no effort to check facts in order to back up his statements.

Wally Casey
Director of marketing
Personal Software Product Division
IBM
Austin, Texas

Kearns responds: While Casey points out that OS/2 and LAN Server hold 22% of the application server market, this is largely the result of the success of Lotus Notes, which, until recently, was not available for the NT or NetWare platforms.

The companies announcing support for OS/2 Warp Server are, for the most part, companies that also support LAN Server and NetWare or NT Server.

While Warp Server does include many utilities that are add-ons in NetWare and NT Server, these are of more interest to the entry-level market than to established LAN users planning to migrate to a new platform.

I agree that IBM has a strong position in the server market, especially with its hardware. Nevertheless, the IBM PowerPC server platform continues to offer NT Server as an OS, but not Warp Server.

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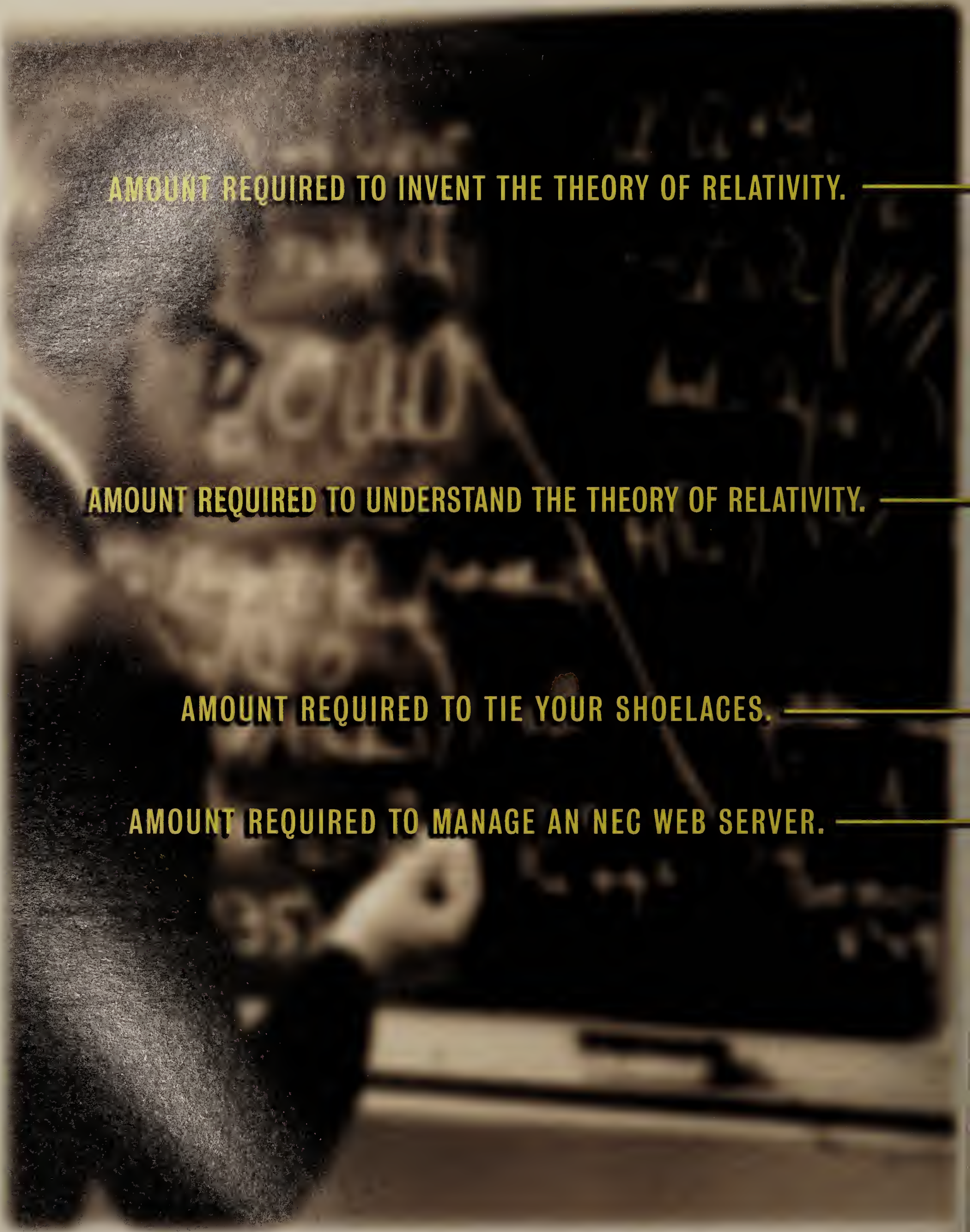
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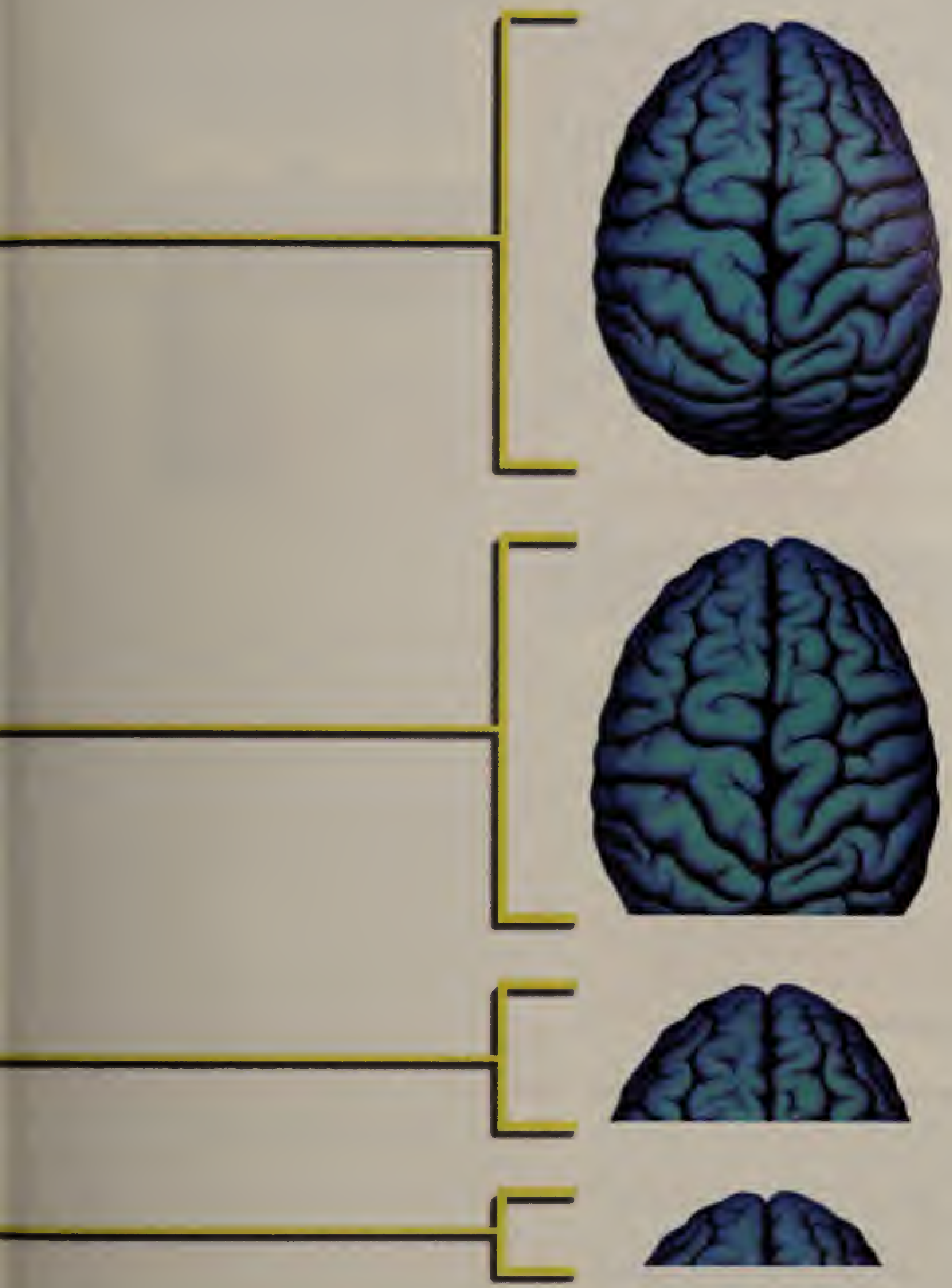

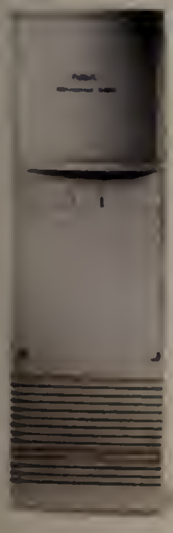

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NetworkWorld PC WORLD

SERVER TEST SERIES

SERVING THE NETWORK

Our second monthly look at network file servers introduces a new feature — rankings. From now on, we'll list the best performing servers we tested, both in terms of raw performance and price/performance.

The two servers we tested this month come in at the bottom half of the short list of four servers we've tested so far. CSS Laboratories, Inc. customizes each server to user specs. Its MaxPro 1500 is a solid offering with a moderate price, but it falls a bit short on performance.

The Dell Computer Corp. PowerEdge SP5133-2 did not fare quite as well. Its performance was mediocre, and its value ranking was crippled by a relatively high price. On the other hand, Dell is known for good support, an intangible we don't factor into our ratings.

Our performance rating is derived by adding the file server performance in scripts per minute to the average of two application server tests, one using Notes and the other an Oracle Corp. database application. In each test, we use the results measured when the server is supporting 16 clients. We then divide the price of the server as tested by the performance rating to get our price/performance index.

Get the complete results of our server testing on Network World Fusion. Select NetRef, Buyer's Guides and Reviews, then Servers.

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Server purchase tips

There are some commonsense things to look for when purchasing a new server.

First, get all the memory you can afford. Multiple users requesting information from a single machine tax a server's capabilities. The more memory you have, the less often the server will need to make the comparatively slow access to disk.

Make sure that the server can take advantage of all of its memory for cache. There are many third-party tools that measure cache hits. Strive for at least a 75% cache hit rate. There's no point in having more memory than necessary, but most network operating systems can use as much as they can get.

CPU performance is not a primary factor, especially for file servers. That's because so much of a server's work is reading and writing files, not CPU-intensive tasks. Don't pay a huge premium for Intel Corp.'s latest Pentium when the previous generation is adequate for most needs.

On the other hand, do buy the faster model of a given generation. For example, the 120-MHz and 133-MHz Pentiums are sister chips. But while the 120-MHz model uses a 60-MHz internal bus, the 133-MHz chip uses a 66-MHz bus. It's worth the slight difference in cost to get the extra 10% performance.

Also, be sure your server has at least a 256K-byte Level 2 cache with packet burst memory. That's faster than 512K bytes of static RAM.

For storage, go with the fastest SCSI disks you can afford. We like some fault tolerance, whether it's disk duplexing or disk striping or full RAID 5 capabilities with redundant everything.

These days, a CD-ROM drive is a must, and most servers come with them standard. Today, the best balance of price and performance comes in quad-speed models. Getting one that runs off your SCSI adapter rather than an ATA-based drive will save a slot on your motherboard.

For purely practical reasons, we like servers with hand screws that open without use of a screwdriver and whose hard drives are as easily accessible and can be slid out and hot-swapped.

Don't waste a lot of money on a large-screen monitor for your server. Most of your management can be done remotely from your desk, and most management applications don't need a lot of screen real estate. Models that are 14 or 15 inches are perfectly adequate.

— Lee Schlesinger

MaxPro 1500 P5-166

VENDOR: *CSS Laboratories, Inc.*

CONTACT: *(714) 852-8161*

PRICE: *$8,899*

PERFORMANCE RATING: *31.9*

PRICE/PERFORMANCE INDEX 279

Note: A lower price/performance index indicates better value.

WORTH NOTING

CSS Laboratories, Inc.'s MaxPro 1500 proves good things don't have to come in small packages. This is a very large, very heavy computer, but it's a good value for the level of performance it provides.

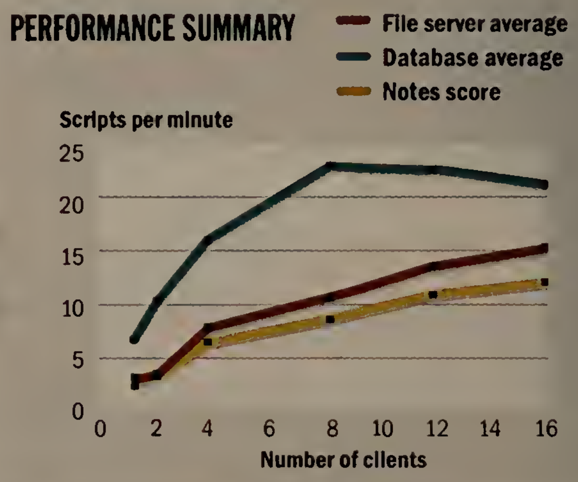
The MaxPro uses a keyboard with a large DIN connector and a serial, not a Personal System/2-style, mouse. The server's hard drives are encased in Kensington Microware, Ltd. trays for hot-plug capability and allow RAID 0 disk striping using a Mylex Corp. DAC960 controller.

The server is armed with four large and noisy fans on the side panel, two for intake and two for exhaust. There are also two fans in the front and fans all along the side of the drive bay area — 17 in all. While the server should certainly never overheat, we question the necessity for this level of engineering.

It also creates a problem if you need to get at the server's interior. You first have to disconnect the fans in the side panel using a standard peripheral power connection (like one for hard drives). The panel itself comes off easily after the removal of two screws.

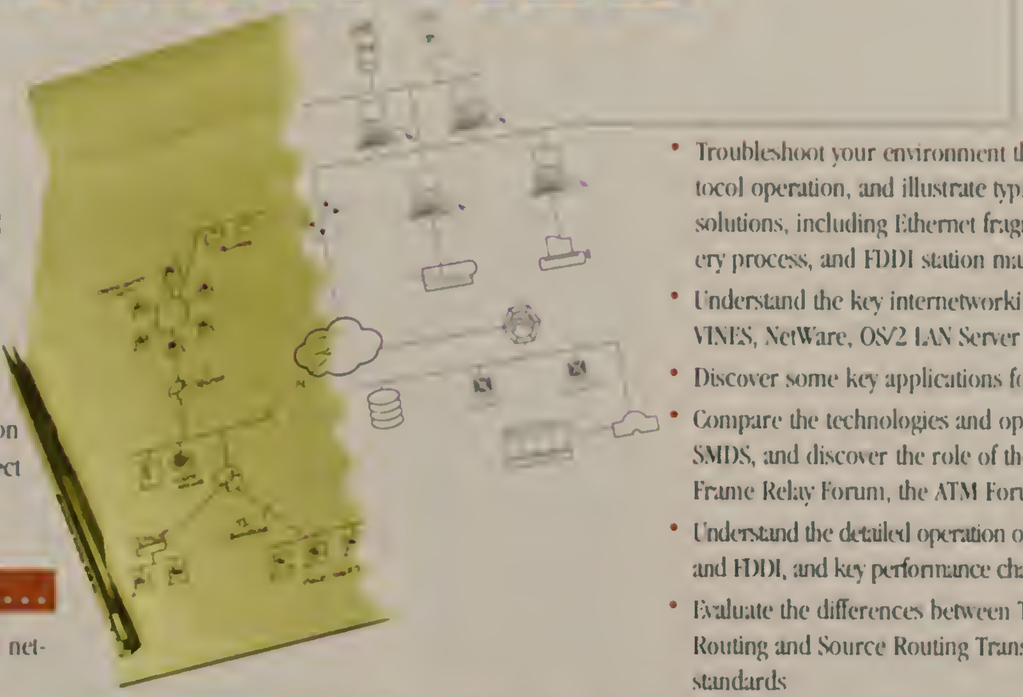
There's lots of room inside for drive expansion, but installing new drives requires removing an internal wing nut to remove the front bezel. Changing the hot-pluggable drives is easy, though. SIMMs are easy to access, too, as is the whole interior. There are PCI, EISA and even four ISA slots.

MaxPro's documentation is reasonably useful but obviously assembled predominantly from other sources. It includes Seagate Technology's manual for the Hawk 2LP family of drives, a VGA adapter book and an Adaptec, Inc. SCSI controller manual. CSS does supply a Technical Reference manual and a Guide to Installation, Operation and Setup. A book for the Mylex adapter was not included.



NetworkWorld
TECHNICAL SEMINARS

Internetworking: DESIGNING LANs, WANs & BROADBAND NETWORKS



The ever-changing internetworking landscape, fueled by emerging broadband technologies, dramatically challenges traditional LAN and WAN architectures. Network professionals must now integrate local and wide-area networks with new technologies including fast Ethernet, ATM, frame relay and SMDS. These and other new technologies hold the promise of more efficient and ever-faster communications across enterprise networks.

Directed and taught by Mark Miller, author of seven best-selling books on internetworking technologies, this seminar will teach you how to architect and implement multiprotocol, multioperating system internetworks that seamlessly integrate legacy and emerging technologies.

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- Understand key internetworking protocols, such as TCP/IP, IPX/SPX, X.25 and XNS
- Determine bandwidth requirements for both leased line and broadband circuits utilizing traffic studies
- Troubleshoot your environment through case studies that detail protocol operation, and illustrate typical internetworking problems and solutions, including Ethernet fragments, the token ring route discovery process, and FDDI station management
- Understand the key internetworking features of AppleTalk, Banyan VINES, NetWare, OS/2 LAN Server and Windows NT
- Discover some key applications for narrowband ISDN technology
- Compare the technologies and operation of ATM, frame relay and SMDS, and discover the role of the broadband implementers: the Frame Relay Forum, the ATM Forum and the SMDS Interest Group
- Understand the detailed operation of Ethernet, IEEE 802.3, token ring and FDDI, and key performance characteristics of these technologies
- Evaluate the differences between Transparent Bridging, Source Routing and Source Routing Transparent Bridging internetworking standards
- Utilize available software tools in the network optimization and modeling process
- Examine application gateways that connect LANs, minicomputers and legacy systems
- See how SNMP plays a key role in internetwork management including the management and operation of broadband networks
- Understand the operation of IP-based routing
- Match the appropriate LAN application with the WAN broadband technology
- Understand TCP/IP and the Internet protocol suite, including ARP, ICMP, UDP, SMTP, TELNET and FTP
- Explore the internetworking challenges of remote access and wireless communications

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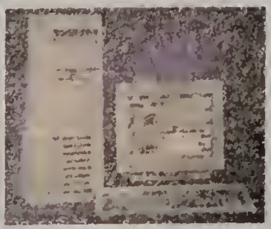
Dell PowerEdge SP 5133-2

VENDOR: *Dell Computer Corp.*
CONTACT: *(800) 289-3355, (512) 338-4400*
PRICE: *$10,738*
PERFORMANCE RATING: *26.5*



PRICE/PERFORMANCE INDEX 405

Note: A lower price/performance index indicates better value.

WORTH NOTING

The Dell Computer Corp. PowerEdge SP5133-2 has the highest price and lowest performance of the servers we've tested to date. The server did well in our database testing but showed subpar results in Notes and file server tests.

The server comes in a large tower configuration. A separate door for the drive bays makes it easy to remove hot-pluggable drives without taking off the server's cover, while a lock for the door also keeps the cover in place.

To access the expansion bus and system board, however, you must lift the entire cover off after removing three capture thumbscrews.

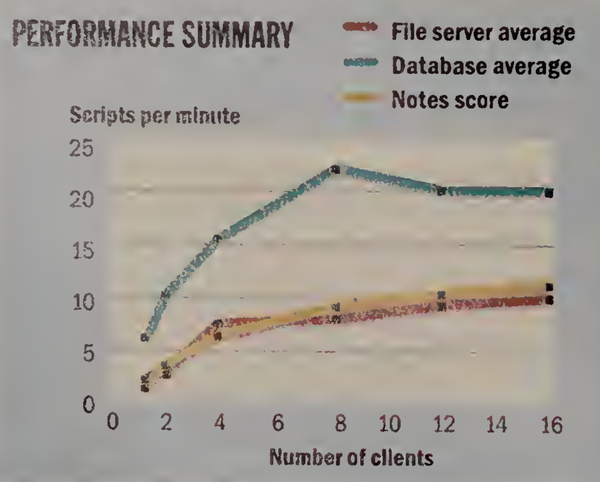
The expansion bus connectors are on a handy horizontal riser, so you press down instead of sideways to install cards.

You need to remove the entire motherboard to change the memory configuration. After you remove four screws, the motherboard and the video/parallel/serial/keyboard/mouse port panel to which it is connected all come out together. But disconnecting and reconnecting the multitude of cables plugged into the motherboard (for system LEDs, the reset switch and so forth) make swapping SIMMs a tedious task.

Dell provides extensive documentation. We were a little surprised to get manuals such as EZ-SCSI for DOS/Windows and a Dell FAQ for DOS and Windows in a server box. All of the printed documentation appears under Dell covers so it looks like an integrated system rather than an assembled one.

The CD-ROM drive is the first six-speed model we've tested. On the negative side, it requires you to encase discs in a caddy.

The system has two large fans for cooling, which make it a little noisy.



THE INSIDE STORY

Model	MaxPro 1500 P5-166		Dell PowerEdge SP 5133-2	
Processor	Intel Pentium, 166-MHz, 512K-byte L2 cache		Intel Pentium, 133-MHz, 256K-byte L2 cache	
Maximum processors	2		2	
Memory	**As tested**	**Maximum**	**As tested**	**Maximum**
	32M bytes	384M bytes	32M bytes	512M bytes
Slots	**Provided**	**Open**	**Provided**	**Open**
EISA	4	4	4	4
PCI/EISA	1	0	2	1
PCI	2	0	0	0
Processor	0	0	2	1
	4	4	0	0
Total	11	8	8	6
Bays	**Provided**	**Open**	**Provided**	**Open**
	0	0	4	4
External	13	8	4	2
Total	13	8	8	6
Storage				
Adapter	Mylex DAC 960 Fast & Wide SCSI-2		Integrated (NCR)	
Bus	PCI		EISA	
Capacity	6.3G bytes		4.2G bytes	
Model	3 Seagate Hawk 2LP ST32430N		2 Seagate Hawk ST31230N	
Average seek time	9.5 msec		Drive-dependent	
Transfer rate	20M bytes/sec		Drive-dependent	
Embedded cache	4M bytes on Mylex controller		Drive-dependent	
Maximum drive capacity	**Internal**	**External**	**Internal**	**External**
	48G bytes	36G bytes	16G bytes	64G bytes
CD-ROM	4X Sony CDU76S SCSI		6X NEC CDR 512 SCSI	
Network adapter	CSS EtherPro 10/100 PCI		3Com 3C595 10/100 PCI	
Fault tolerance features	Redundant power supplies, Mylex RAID 5-capable controller, hot-swappable drives		Hot-swappable drives, optional Dell SCSI array with server management software, parity memory, Dell SafeSite	
Security features	Locking side panel and access bezel, keyboard lock		Case lock	
Certifications	Novell, Windows NT, VINES		Windows NT, NetWare, VINES, NextStep, Unix, Solaris	
Bundled software	MS DOS 6.22		NetWare 4.1, DOS 6.22, Windows 3.11, SafeSite	

PERFORMANCE LEADERS

Model	Issue tested	Top performance score
HP NetServer 5/133 LH	2/19/96	**38.6**
Compaq ProSignia 500 Model 5/120-210	2/19/96	**32.2**
CSS MaxPro 1500 P5-166	This issue	**31.9**
Dell PowerEdge SP 5133-2	This issue	**26.5**

VALUE LEADERS

Model	Issue tested	Price/performance index
Compaq ProSignia 500 Model 5/120-210	2/19/96	**175**
HP NetServer 5/133 LH	2/19/96	**213**
CSS MaxPro 1500 P5-166	This issue	**279**
Dell PowerEdge SP 5133-2	This issue	**405**

RFC

Now that you've had a chance to see a couple of issues' worth of our server review series, we'd like to hear from you. Are there other factors we should be testing? Should we try to weight the factors, and if so, by what percentage? Send your comments to Test Center Director Lee Schlesinger at lschlesi@nww.com.

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NetWorld+Interop 96 Preview

A special guide for network decision makers

While it might be hard to compete with the glitz and glamor of Las Vegas, the upcoming NetWorld+Interop 96 trade show will do its best.

The spring edition of the conference will feature, on center stage, some of the biggest names in the networking biz, such as Microsoft Corp.'s Bill Gates and Novell, Inc.'s Robert Frankenberg. You'll also have a chance to check out headline acts such as Asynchronous Transfer Mode, groupware and the Internet, as well as a rising young star called the intranet.

Our talent scouts have already checked out the scene, and what follows is a list of our picks for maximizing your time while in Las Vegas.

SHOWCASING MULTIVENDOR SOLUTIONS

The Solutions Showcase Demonstrations (SSD) are a perennial highlight of the show, providing a look at multivendor demos of the latest network infrastructure and application technology.

SSDs serve as proving grounds for these technologies, where users tired of the marketing hype in single-vendor exhibit booths can see for themselves how products from competing vendors interact in a test-bed environment.

On tap are demonstrations of multimedia application infrastructures using the Resource Reservation Protocol; ATM interoperability, including LAN Emulation; fast Ethernet; 100VG-AnyLAN; and High Performance Parallel Interface technology.

The SSDs run during the exhibit hours: Tuesday, April 2 and Wednesday, April 3 from 10 a.m. to 6 p.m.; and Thursday, April 4, from 10 a.m. to 4 p.m.

Tuesday

April 2

Our picks

12 to 1:15 p.m.

Keynote: *Robert Frankenberg, chairman and chief executive officer of Novell, Inc.*

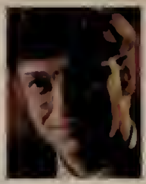
Frankenberg begs to differ with Bill Gates about the Internet being only a conduit for smart desktop applications. In his address titled "Challenges of a Network-centric World," Frankenberg will talk about how the smart network is where it's at. Although IBM and Hewlett-Packard Co. execs hold a similar view, Frankenberg will address why he thinks Novell is best positioned for the network-centric world.

Pick of the DAY

Keynote

BUSINESS COMMUNICATION ON THE INTERNET

Bill Gates, chairman and chief executive officer, Microsoft Corp.



Tuesday, 9 to 10 a.m.

At his Comdex/Fall '95 keynote, Gates wowed the audience with his company's plans to dominate the Internet by making it a conduit for all things Microsoft. Microsoft's leader will use this address to outline the latest on the company's Internet vision — which has been reworked several times in recent months as Microsoft looks to sweep upstarts such as Netscape Communications Corp. off the stage. Expect a sexy demo.

2 to 3:30 p.m.

Supporting Telephony over ATM

So you're looking for the killer ATM application? Telephony may be it. Sanjay Kumar, president of Kumar Associates and former development manager for the broadband telephony group at Microsoft Corp., will lead a panel discussion of basic approaches to combining ATM and telephony, and talk about the need for common protocols and standards.

3:45 to 5 p.m.

Virtual Private Internets Quick Hit

While everyone was crowing about the Internet, intranets began to spawn like salmon in spring. This panel discussion will focus on how you can use Internet technologies such as Web servers and browsers, electronic mail and File Transfer Protocol to create an internal network that has the convenience of the Internet and the security of a private network.

4 to 5:30 p.m.

ATM and IP: How Will Corporate Backbones Migrate?

Users are screaming for bandwidth. Even network backbones running fast Ethernet and FDDI are straining under the load of applications that want more than 100M bit/sec. Everyone says ATM is the answer, but it's difficult to configure and scale. Kevin Fong, a general partner with the Mayfield Fund, will talk about how to configure an ATM backbone and which internetworking vendors are planning to make the whole job easier.

6 to 8 p.m.

The Great Debate: The Web — Clear and Present Danger?

Is the Web the promise of the future or a sinkhole of porn and chaos that will be passe before corporate networks can fully support it? Moderator David Strom, president of David Strom, Inc., will keep the discussion lively between Dave Dougherty, president of Songline Studios, Inc., and Open Text Corp.'s Tim Bray, senior vice president of technology, who approach the issue from opposite poles.

Wednesday

April 3

Our picks

10 to 11:45 a.m.

100M bit/sec War Stories

Jayshree Ullal, director of marketing at Cisco Systems, Inc., will lead a panel of experts sharing their experiences concerning fast Ethernet LANs. Topics of discussion will include the effect of AppleTalk traffic on fast Ethernet links, Ethernet-to-fast Ethernet connectivity issues and performance of fast Ethernet adapters. Panelists include Chad Taggard, senior product manager for fast Ethernet adapters at Intel Corp., Dale Mann, general manager of operations information at Stanford Research Institute, and Tony Lee, senior product manager for fast Ethernet networking at Sun Microsystems, Inc.

Keeping Corporate Network Safe from Intrusion

Warning! The Internet may be hazardous to your network's health! Do you have a full grasp of all of the dangers that may be lurking on the Internet before you set up your connection? This session will address current threats and what you can do to protect your net.

2 to 3:30 p.m.

Next-Generation Cell-based Routing

Have you thought about transforming your network from being packet-based to cell-based? Cell-based routing may offer the low latency and high performance of cell switching with the administrative features of existing routers for applications such as IP Multicast, voice and real-time video. In this session led by Asher

Quick Hit

Pick of the DAY

NETWARE DIRECTION: A CONVERSATION WITH DREW MAJOR

Wednesday, 6 to 8 p.m.

Novell, Inc. is doing everything it can — from amputating parts of itself to Internet-enabling its product line — in an effort to keep NetWare the 800-pound gorilla of the network operating system (NOS) market. Major, NetWare's original architect, will talk about how Novell is striving to ensure that NetWare is not only the NOS of the present, but also of the future.

Waldfogel, a program manager at Bay Networks, Inc., officials from Ipsilon Networks, Inc., Connectware, Inc. and Toshiba Corp. will discuss design, implementation and deployment issues, as well as experiences with cell-based routers.

4 to 5:30 p.m.

Switching the Enterprise from TDM to ATM

Many large corporations have a significant investment in time-division multiplexing (TDM) infrastructures, and making the transition to ATM in a nondisruptive manner is a big challenge for them. Hear how different panelists, including Tony Rybczynski, director of strategic marketing at Nortel Magellan Networks, approach this challenge from technology, application and business perspectives.

6 to 8 p.m.

ATM Switching Test and Evaluation Results

Need pointers on making switch purchasing decisions? Renowned crash-tester Scott Bradner, a consultant with Harvard University's Office of Information Technology, hosts the first industrywide Ethernet-to-ATM and ATM switch test and evaluation. The tests were conducted jointly by Bradner and Nick Lippis, principal at Strategic Networks Consulting, Inc.

Thursday

April 4

Our picks

9 to 10:45 a.m.

Keynote: *Maks Wulkan, executive vice president and cofounder, Eicon Technology, Inc.*

In his address, titled "The Networked Desktop: The Future of Information Access," Wulkan will discuss trends emerging for remote LAN and individual user access to networked resources. He will focus on how users can manage change and lower the overall cost of ownership of their remote access requirements.

10:15 to 11:45 a.m.

In Perspective: Sure, the Internet's Great, But There's Still a Lot Missing

Sure, you get your E-mail and find the canonical list of jokes to forward to a friend, but the Internet was designed for researchers, not heavy-duty business use. Cisco Systems, Inc.'s Business Development Manager Stephen Wolff will lead a panel focusing on things the Internet Engineering Task Force and other groups are doing to make the 'Net better. They also will talk about needed enhancements no one is working on.

2 to 3:30 p.m.

SNA Internetworking Today

With many options on the market for linking legacy SNA environments to LAN internetworks, which is best for you? Louise Herndon Wells, director of the Internetwork Technology Institute, reviews the benefits and drawbacks of tn3270, Data Link Switching, Multiprotocol Transport Networking and SNA over frame relay or ATM. She'll also examine running multiple protocols across SNA, APPN and High Performance Routing infrastructures.

Pick of the DAY

General Conference Session

WILL ATM SWITCHES REPLACE ROUTERS?

Thursday, 2 to 3:30 p.m.

The Layer 2/Layer 3 debate will get inspected, dissected and intersected in this talk from one of the industry's foremost authorities on internetworking. Join Nick Lippis, principal at Strategic Networks Consulting, Inc., as he sizes up the benefits and gotchas of ATM switches and multiprotocol routers. He also will discuss whether ATM switches with integral routing can provide the same firewalling, security, rate adaptation and quality-of-service functions as routers, or whether ATM switching and routing will always remain separate functions in the switched enterprise networks of tomorrow.

4 to 5:30 p.m.

Switching Hubs and Congestion Avoidance: Oil & Water?

In deciding on which switching hub to buy, congestion avoidance and network management are important considerations. Learn how vendors use different techniques — active and passive — to manage and avoid congestion in switching hubs.

Notes Arrives

AT&T's Network Notes service is down the tubes, and the word is that the Web is stealing away many potential Notes users. But don't be so fast to write off Lotus Development Corp.'s Notes groupware offering, according to these Notes customers.

Led by Katherine Epes, a consultant at World Bank, a group of experienced Notes administrators will tell you what kinds of applications go well with Notes and which you shouldn't even consider. The group will discuss where Notes and Web servers fit in your network, as well as how to get top management to back your decision.

NETWARE EVERYWHERE

Windows NT may have the momentum, but NetWare will be in the spotlight at the NetWare User Conference April 1-5 in Las Vegas.

The conference is held in conjunction with NetWorld+Interop but is run separately by NetWare Users International (NUI).

The conference will consist of seminars presented by Novell, Inc. instructors and engineers, as well as consultants and systems integrators from NUI and the NetWare Professionals Association. It will be held at the Alexis Park Resort Hotel.

Monday and Tuesday are given over to two-day sessions, which include a pair of courses detailing NetWare LAN performance as well as NetWare 4.1 design and implementation. Prospective Certified NetWare Engineers (CNE) can get a mental workout at the CNE Boot Camp for NetWare 4.1.

On Wednesday and Thursday, 90-minute courses include Making NetWare Director Services Earn its Keep, Optimizing Your NetWare Infrastructure, Remote Access Security, NetWare Security, High-speed Networking and Switches and others.

Friday features full-day seminars, including an Introduction to Wide-Area Networks, a CNE Recertification Camp and a course on Integrating Windows 95 with NetWare.

The latest schedules are available via the World-Wide Web at http://www.interop.com. To register, call (800) 488-2883.

HIGH-SPEED SERVICE FANS UNITE

Both the Frame Relay Forum and the SMDS Interest Group will congregate at NetWorld+Interop.

Analyst Jennifer Pigg of The Yankee Group will present the keynote address "Bridging the Gap Between Frame Relay and ATM" at the Frame Relay Forum's annual meeting.

Also at the gathering, the forum's technical committee will continue its work on voice-over-frame relay specifications and a resilient Network-to-Network Interface.

The annual meeting will be held on April 1 from 8:30 a.m. to 12:30 p.m. in Room N-223 of the Las Vegas Convention Center.

The SMDS Interest Group's headline speakers will be Stephen Wolff, Cisco Systems, Inc.'s manager of business development; Todd Hirsch, MCI Communications Corp.'s product manager for data marketing; and Tom Barsi, senior product manager for Pacific Bell Internet Services. The three will discuss how Switched Multimegabit Data Service can fit into companies' Internet plans.

The SMDS Interest Group meeting will be held in Room 249 of the Las Vegas Convention Center on April 3 from 8 to 9 a.m. For more information on the SMDS Interest Group, contact Ann Jansen at (503) 648-3545.

You can't be everywhere at once, but we can. Link to Network World Fusion for exclusive daily coverage from NetWorld+Interop. Reports start on Monday, April 1. From the main menu, select News+ then NetWorld+Interop.

Network World Fusion

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Deploy element managers and monitoring systems at customer sites. Work with customers to identify configuration, application, networking, and support requirements. Work closely with systems architects to specify third-party application software association and integration. Bring knowledge of network management technology and products, software development, application APIs, database architectures, platform characterization and UNIX. Position code: TNSR.

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E-Mail Develop and maintain an enterprise electronic mail system for a community of 10,000 users. Duties include NOS server support and application serving. Minimum of 4 years' experience working with cc:Mail, Microsoft Mail, Banyan Vines, Novell, LAN Manager, VMS and UNIX.

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Requires a BSCS/BSEE degree or equivalent with 4+ years' experience in a telecommunications or internetworking customer support center. Strong technical skills in TCP/IP, FDDI, UNIX, Novell, Windows NT, WIN95, Windows Workgroups and OS/2 are required.

Network Analyst

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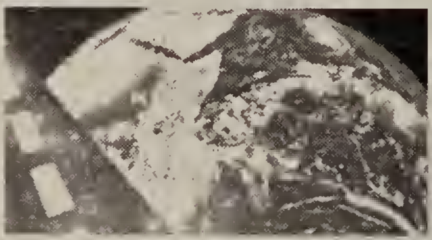

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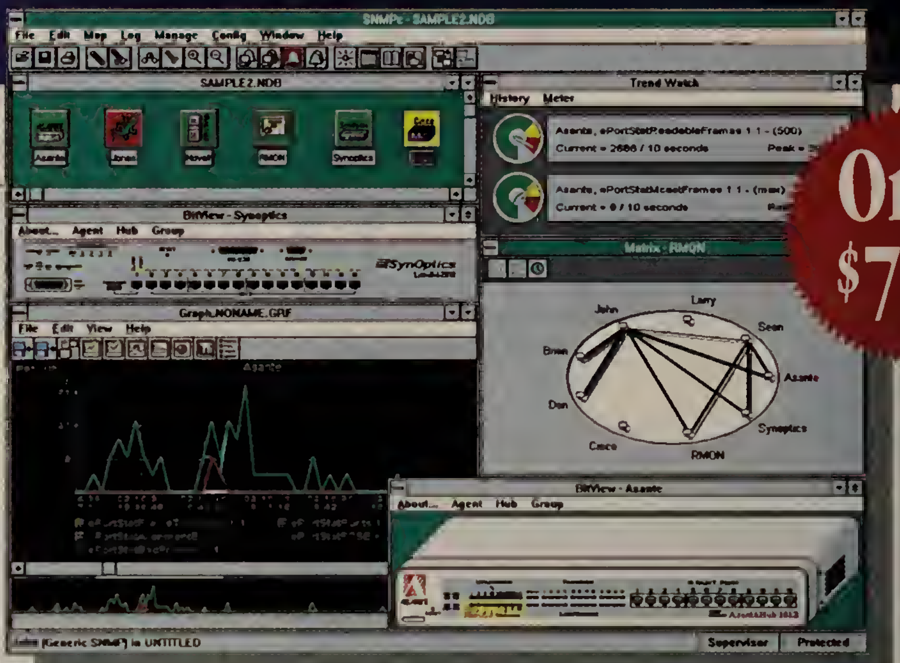

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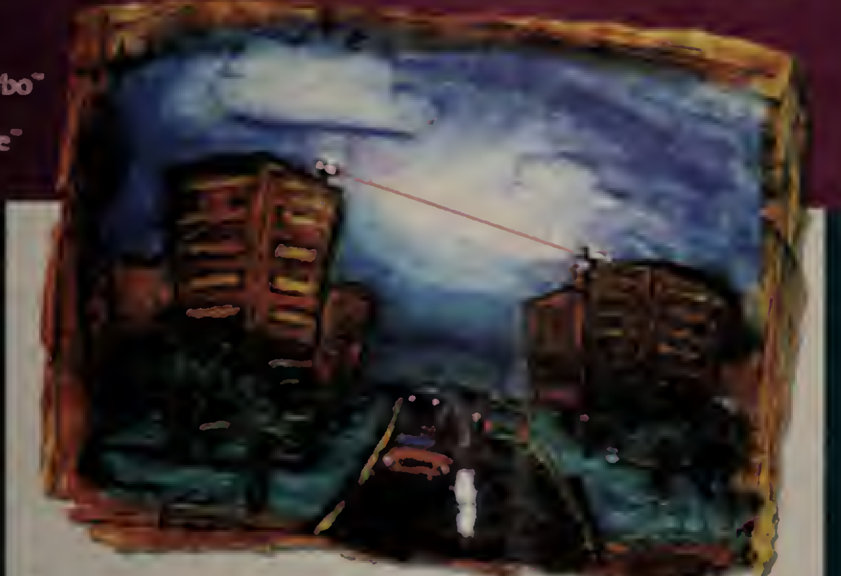

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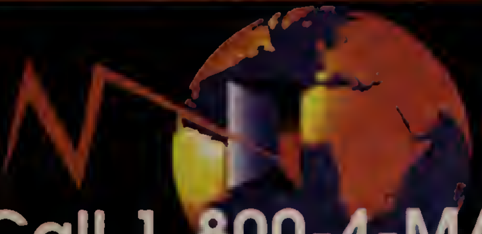

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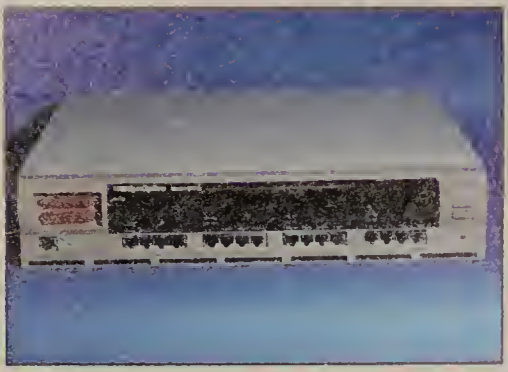

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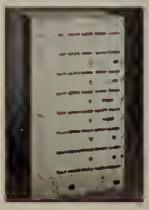

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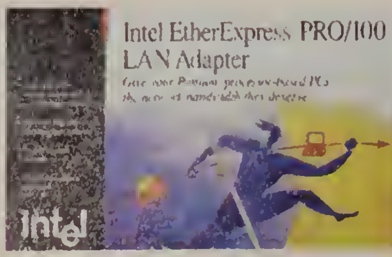

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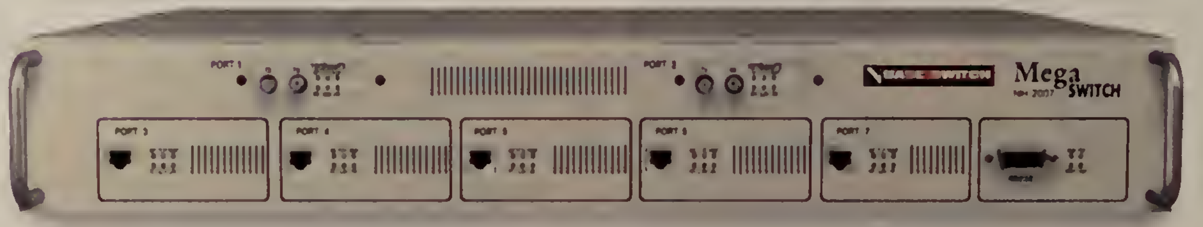

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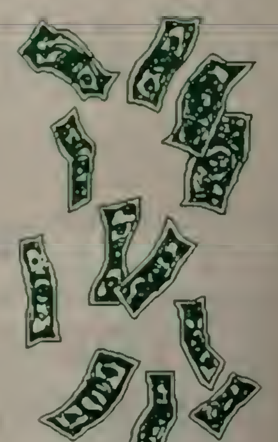

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EDITORIAL INDEX

3Com....17,24
A
Applix....1
Ascend....17
AT&T....6,10,26
B
Baan....10
Banyan....21
BBN Planet....17
BDM International....31
Bell Atlantic....24
Breeze....21
BT....6
C
Cabletron....17,24
Cisco....8,24
Citrix....17
Compaq....24
CompuServe....1
CSS Laboratories....40
D
Data General....31
Dell....40
Deutsche Telekom AG....6
Digital....1
Digital Technology....6
Documentum....25
E
ECI Telecom....17
F
Farallon....31
Future Labs....31
H
HP....21,24
I
IBI....25
IBM....1,6
IBM Global Network....6
ImageNet....6
Intel....1,21,24,62
Isocor....21,31
L
LANshark....21
Lotus....6,25,26,30
M
MCI....17
Micro Logic....25
Microcom....12
Microsoft....1,6,8,17,62
Motorola....12
N
NBase....21
Netscape....6
Network Peripherals....21
NetWorth....24
Neuron Data....25
Newbridge....21
Night Technologies International....24
Novell....6,10,24
NYNEX....17
O
Open Market....6,21
Oracle....25
P
PeopleSoft....10
PSINet....17
Q
Quarterdeck....1,24
R
Revelation....30
S
S2 Systems....21
SAP....10
Seagate....17
Shiva....12
SMMC....12
Specialix....17
Sprint....17
StonyBrook....1,
Stratus....21
Sun....12,1
Sybase....1
SynOptics....2
T
Tandem....2
Telstra....
Triad Systems....2
U
Uniplex....2
U.S. Robotics....1
UUNET....1
V
Versant....2
VocalTec....
VoxWare....
X
Xedia....
Xerox....
Xylan....

ADVERTISER INDEX

Advertiser	Reader Service#	Page#
Access Media Inc		43
Adtran		63
Bay Networks		64
Cabletron Systems Inc		2-3
Cisco Systems		22-23
Directions '96		26
Hewlett-Packard		11
IBM		7,18-19
Microsoft Corp		32-33
NEC Technologies Inc		38-39
NetManage Inc		16
Novell Inc		28-29
PSINet		34
Racal Datacom		9
Softbank Corp		59
Sprint		4
Standard Microsystems Corp		15
UUNET		13

Regional/Demographic

Ads appear in selected issues

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Marketplace Advertiser Index	Reader Service#	Pa
American Power Conversion	294-299	51.53
CNT Brixton Systems		
Castle Rock Computing	252	
Cybex	227	
DEI	245	
Excel Computer	235	
MaxNET	267	
West Hills LAN Systems	253	
NBASE Communications	242	
S Com Manufacturing	269	
Technically Elite	247	
Xecute	291	

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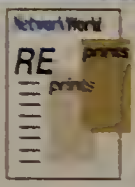

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Digital

ontinued from page 1

he ClearVISN application suite, a set of ols for managing assorted virtual LANs, witches and other internetworking gear rom a common console. At the heart f the applications will be a common indows NT-based database into which les will pool information, letting users ake a policy-based approach to network anagement.

Policy-based management allows net dministrators to enforce rules that can sure high service quality for certain pplications by allowing priorities to be signed to different traffic types.

Users can get a sneak peek at the man-gement tools next month at NetWorld+ terop 96 in Las Vegas.

Until now, customers have been forced o use separate management tools from endors such as 3Com orp., Bay Networks, nc. and Cisco Sys-ems, Inc. to monitor ach vendor's boxes. igital's approach will liminate the need for any of these individ-al applications. In-ead it will provide a maller set of more ghtly integrated task-riented tools that rovide information o real-time net bottlenecks, for example. nother application, a path-finding tool, ll discover multivendor devices.

Digital's *Sweet says the new apps will let net managers more easily troubleshoot.*

Digital's approach may seem similar to asic Simple Network Management Pro-ocol platforms — such as Hewlett-Pack-d Co.'s OpenView — that let users anage SNMP-compliant gear from mul-ple vendors. But such platforms merely t as a launching pad for applications d do not share information among the fferent tools, according to Ravi Gulati, esident of StonyBrook.

The new applications will extend the pabilities of these management plat-rms, said Bruce Sweet, Digital's engi-ering manager for network man-ement. Data will be collected from all e ClearVISN applications and depos-d in a common database, allowing net anagers to more easily troubleshoot the twork and choose a course of action.

Sweet said net managers will also be le to automate many functions by creat-g policies stored inside the common tabase.

According to analysts, Digital is one of e first network players to abandon the gle-vendor approach and develop oducts optimized to manage multiven-r environments as a common entity.

This approach appeals to Jürg Pieren, ecommunications manager at IKEA, a niture manufacturer in Aelmhult, erland.

Right now, it's hard to make long-m decisions in the net management ea because I like to have the option to ange vendors," Pieren said. "So if I can est in open management tools, it gives the freedom to go from DEC to Cisco uters, for example, without having to buy all new management tools."

Digital now offers its HUBwatch for Windows to manage its SNMP-based hubs and switches. In addition, the company provides its ManageWorks and Polycenter enterprise management plat- forms. But like others, these management tools are primarily single-vendor products, said John McConnell, president of McConnell Consulting, Inc. in Boulder, Colo.

"Digital is really trying to tackle the management problem from the inside out in the sense of building an integrated repository," McConnell said. "This will really let them leverage the information that these different tools collect."

Digital's last attempt at multivendor management — the Polycenter Framework mentioned earlier — was designed for multivendor network and systems management. Although the application was to span multiple vendors' devices, it failed to generate much customer interest, most likely because it was VAX-centric (NW, Aug. 30, 1993, page 1).

Customers using Digital's HUBwatch application will be able to move to the new integrated management suite via a software upgrade.

Pricing has not yet been set for the applications, which are expected to start shipping this summer.

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Crime

Continued from page 1

ers and police say is a crime wave where net tools are the crooks' weapons of choice. And they may even be using your corporate resources to break the law.

The explosion of the World-Wide Web and other on-line services has brought in the bad with the good. Authorities now find:

- Prostitution rings equipped with sophisticated computer gear, including high-speed modems to communicate with employees and customers.
- Drug gangs keeping tabs over networks.
- An array of criminal types authorities suspect plot their deeds behind the cloak of the 'Net's Pretty Good Privacy (PGP) technology.

In fact, Maryland authorities are investigating HotLine, a bulletin board system (BBS) suspected of arranging prostitutes.

The New York Police Department is also tackling crime on the Internet. In one case, the police department tracked down Joseph Pazos, an employee at a publishing firm who advertised computer equipment for sale cheap in on-line classifieds. People sent him money from as far away as Europe, but Pazos never sent the buyers anything.

Pazos, who had used his employer as the mailing address, fled his job. But the NYPD tracked him down in New Jersey, where he pleaded guilty to a felony scheme to defraud.

Where the action is

With networking so pervasive, law enforcement officials increasingly find themselves seeking to infiltrate electronic BBSs and areas of the 'Net where prostitution or stolen credit card rings are suspected to exist. "We will go onto the area of the 'Net where we hear there's a problem," said Lt. John Browne, commander of the NYPD Computer Investigations and Technology division.

Cybercops don't usually go it alone. They use confidential informants to help them gain entry to illegal bulletin boards, particularly those set up to sell stolen software.

The National Computer Security Association (NCSA) also pitches in with a task force that goes underground to infiltrate bulletin board rings involved in crime.

Barrett *warns anyone buying off the 'Net to proceed with caution.*

"There are over 370 bulletin board systems we're somehow involved in," said Peter Tippett, NCSA president. The going can be tough because crooks can hide behind walls of security. "You need passwords and IDs for these," he said.

In many instances, phone, gambling and credit card fraud are the chief concerns. In some cases, people swap stolen credit card numbers across the 'Net. One trick is to have the card address changed so the bill is sent to the thief, allowing the person to rack up charges until the cardholder finally wonders where the bill is.

Hacking is still another big problem. The NCSA, which is hired by corporations to watch the 'Net for trouble, records on computer and indexes about 40,000 pages of network hacker traffic each week from newsgroups and 'zines devoted to hacking or other criminal activity. In the last month, the NCSA has stumbled across two instances where gangs were planning company break-ins.

Law enforcement sources complain that encryption, including the recent development of PGP phone software for encrypted voice communications, makes it harder for them to do their job.

"I believe in Commercial Key Escrow so someone can get into your data," said Tippett, adding that encryption is still not widely used.

Buyer beware

While lots of stolen goods are hawked on-line, computer staff may be the most common. Dan Rogers, spokesman for Motorola, Inc.'s semiconductor division in Austin, said stolen memory chips — hijacked in trucks or carried out from factories in bags — are easy to sell because they're in short supply.

"If there's a quasi-legitimate ad on the Internet, someone will pay a premium," Rogers added. "The Internet has opened up the black market trade."

The 'Net seems almost tailor-made for fencing. Hundreds of Usenet business and consumer advertising groups exist where, for practically nothing, people can post the equivalent of a classified ad. And through the Web, companies are more open than ever before in communicating with unknown individuals.

Daniel Barrett, author of *Bandits on the Information Superhighway*, said fraud in Usenet advertising groups is uncommon but businesses and consumer buying off the 'Net should stil proceed with caution.

"The Internet makes it a littl easier to be anonymous," Ba rett said. "And it's new enoug that we don't have street smar yet." ■

FTC hunts down Internet fraud

The Federal Trade Commission (FTC) last week launched a get-tough approach to Internet fraud, charging nine companies with deceptive advertising practices in their Web or Usenet advertising.

The companies include:

- Wolverine Capital
- DCM Publishing Group
- Simplex Services
- Enterprising Solutions
- Momentum
- NBCD Credit Resource Publishing
- Excel Communications
- Starr Communications

The ninth subject of the FTC roundup, Robert Brandzel of U.S. Telemedia, Inc., is accused of posting ads in the Usenet classifieds for selling computer memory chips but never delivering. Brandzel has apparently fled from Wheeling, Ill., to Arlington, Texas.

—Ellen Messmer

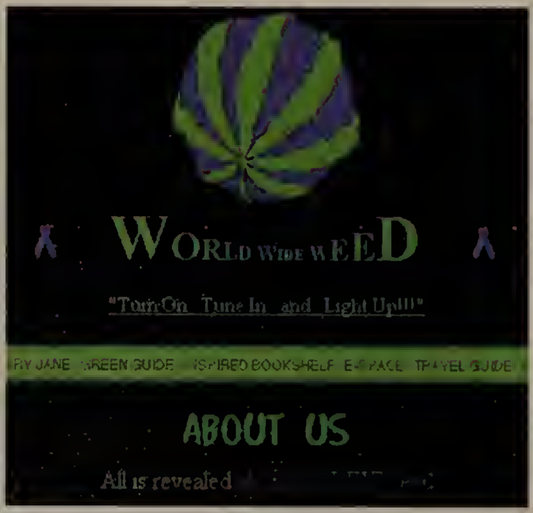
Web sites teach how to commit crimes

It's been said that prisons are little more than schools for criminals. Now, with the Internet, would-be lawbreakers no longer have to go behind bars to further their education. Scores of World-Wide Web sites and newsgroups contain detailed instructions on how to commit crimes ranging from procuring prostitutes to blowing up buildings. Below are some examples of what can be found in cyberspace:

Anarchy on the Internet

You name the crime and you can find instructions for it in *The Anarchist Cookbook*. The original book, however, can't be found on the 'Net. What can be found are documents whose authors claim are updates of the original.

Some chapter titles of one such file tell the story: "Counterfeiting Money," "Credit Card Fraud," "Picking Master Locks," "Letter Bombs," "How to Send a Car to Hell," "Ripping Off Change Machines," "Cellular Phone Phreaking" and "How to Kill Someone with your Bare Hands."



Taking *a trip on the World Wide Weed Web site.*

World Wide Weed

That's the title of one of the many sites offering information on growing marijuana. You also can find sites that tell you how to manufacture LSD, amphetamines and other drugs.

The Big Book of Mischief

This publication focuses on explosives and weapons. It includes instructions on acquiring and preparing chemicals to make an array of bombs. The Big Book also lays out how to build improvised weapons, such as mines, ice guns and rocket bombs.

The World Sex Guide

A compilation of information on prostitution in 55 countries around the world. You can find out whether the trade is legal and, if not, how to procure prostitutes without getting caught. Tips cover where prostitutes can be found and how much they'll cost.

— Chris Nerney

Austin cybercops round up the Berry gang

An Austin stolen goods ring operating under the aliases Berry Associates and Scott Berry was happily using the Internet and bulletin boards to fence electronic equipment. But earlier this year, Chris Lamprecht and Jason Copson, the ringleaders, were finally convicted of money laundering and stolen goods charges and landed in prison.

Lamprecht, Copson and their 20-something pals avoided capture until one day, for reasons never explained, they hacked their way into the Texas State Racing Commission's computers, triggering the commission's network printers, which captured the hackers' phone number.

"It was during the investigation on these hackers that we discovered who they really were," said Sgt. Darrell Gambrell of Austin's high-tech crimes unit. Lamprecht and Copson had set up phony companies hiding behind the World-Wide Web, electronic mail and the phone.

Home *of Austin's high-tech crime unit.*

To trick companies into selling to them, the gang would give a fake bank account number and phone number to their victims to call for a financial reference. A gang member would answer the inquirer's call. If a company was fooled into selling its goods, the Lamprecht/Copson ring had the items delivered to a phony address.

To sell stolen goods, the crime ring cultivated every aspect of a legitimate company to lure gullible buyers, according to Austin-area companies familiar with the Berry Associates modus operandi.

"They'd give you a line of credit, as companie typically do," said Bob Watson, security manager at Xetel Corp. "You'd send them a check, and they'd even send you a reimbursement. They were notorious in Austin."

—Ellen Messm

IBM

Continued from page 1

According to IBM documents, the Software Server family integrates more than 70 products into a series of about 16 configurations. The server family will be supported by other major software vendors such as Oracle Corp. and Sybase, Inc.

Chief among the offerings is the SystemView Server for AIX. This suite includes the SNA Manager/6000 application, which lets users manage their SNA nets from the SystemView console, and an integrated trouble-ticketing application. A CICS Systems Manager and new Application Manager for SAP R/3 applications are also included.

The idea, according to the documents, is to provide users with a single server for managing their distributed net and system resources. In the past, users have had to buy these packages separately and integrate them all themselves.

The new Communications Server for AIX includes SNA Server for AIX and an APPC-over-TCP/IP gateway. The OS/2 Warp version can handle as many as 2,000 users and 20,000 SNA sessions, and offers 3270 emulation and an AnyNet gateway to support SNA traffic over TCP/IP nets. It also includes an eclectic mix of networking technologies, ranging from IBM's High Performance Routing and support for up to 16 Synchronous Data Link Control lines, to Asynchronous Transfer Mode LAN emulation.

While IBM said the Windows NT environment will be supported, only the database, Internet and Lotus Notes Server packages will run on that platform, at least in the near term. These three bundles will be available for NT by this summer (see graphic).

The overall plan has merit, one analyst said. "IBM has a huge opportunity here because many large users are looking for applications they can just plug in and use rather than worrying about all the integration involved," said Todd Dagres, a partner with Battery Ventures, a venture capital firm in Boston.

Users second that emotion. "These servers are completely integrated and are supposed to work seemlessly with one another. Those features are two major selling points for us. We would rather not have to do the integration of these products," said Bill Howey, senior systems consultant with AVCO Financial Services Corp. in Irvine, Calif., which is evaluating some of the server packages.

Gimme a lift

Others said the Software Server family will boost IBM's standing against Microsoft's BackOffice, which includes the NT operating system and messaging, systems management, database, SNA connectivity and electronic mail applications.

"What IBM is offering is more robust and tailorable to specific solutions than Microsoft's products are," said Frank Dzubeck, president of Communications Network Architects, Inc., a Washington, D.C.-based consultancy. "It is also in IBM's plans to work with multiple vendors to integrate their products so that, for example, if you want an Oracle database rather than DB2, IBM will include that in the suite. Try asking Microsoft for that." ■

The server packages and a sampling of their features

Server package	Components	Availability
SystemView Server for AIX	SNA Manager/6000, trouble ticketing	March 29
Directory and Security Server for AIX and OS/2	Encryption, single sign-on	No date given
Internet Connection Server for AIX, OS/2 and Windows NT	Web page construction tools, security	March 12 (AIX and OS/2), May 3 (NT)
Transaction Server for AIX and OS/2 Warp	CICS and Encina support, Lotus Notes integration	March 12 (OS/2), May 3 (AIX)
Communications Server for AIX and OS/2 Warp	SNA and TCP/IP gateway, AnyNet multiprotocol support	March 15 (OS/2), May 3 (AIX)
Database Server for AIX, OS/2 and Windows NT	DB2 support, Web connection	March 15 (OS/2, AIX), June 28 (NT)

Big Blue

Continued from page 1

Concentrator (MpC) Model 200 as well as a more powerful and flexible follow-on, the Model 300. Both models support more local devices and WAN links.

The new models will benefit from a revised version of IBM's MpC software. The software adds support for SNA class-of-service routing as well as High Performance Routing (HPR), an extension of IBM's next-generation SNA Advanced Peer-to-Peer Networking technology that adds congestion control and rerouting features.

The 2217 enables customers to concentrate multiprotocol traffic onto a corporate frame relay backbone, eliminating the need to run parallel TCP/IP and other SNA networks. The enhancements are the first since the box was released in early 1995.

"The idea behind the 2217 is to help users with high concentrations of SNA more easily migrate LAN traffic onto the backbone," Tobacco said.

"The idea behind the 2217 is to help users with high concentrations of SNA more easily migrate LAN traffic onto the backbone," said Richard Tobacco, a product marketing specialist for IBM.

Although the improved 2217 Model 200 still runs on a 50-MHz Intel Corp. 80486 processor, it adds support for a second wide-area interface supporting frame relay, Synchronous Data Link Control or X.25 traffic at speeds up to 2M bit/sec.

SDLC support has been drastically improved. Whereas the previous Model 200 could support only one SDLC desktop device per concentrator, the new 200 can handle as many as 16 terminals or other SDLC devices.

The concentrator still supports a single Token-Ring or Ethernet connection. On the WAN side, ISDN support is expected.

The Model 300 runs on a 75-MHz Pentium processor and will feature three slots, each of which can be filled with an IBM Wide Area Connectivity card. Each card can support two WAN connections, essentially tripling the Model 200's connectivity.

Both models will support the enhanced version of IBM's MpC software. In addition to HPR support, it will add other APPN enhancements, including dependent LU Requestor, which lets 3270 traffic flow over an APPN net. Also, new class-of-service features will let users prioritize traffic coming out of the box to ensure that SNA always gets top priority.

The 2217 is unique in that it runs a combination of OS/2, OS/2 Communications Manager and IBM's AnyNet protocol conversion software, which provides the ability to send TCP/IP, IPX and NETBIOS traffic over an SNA backbone.

Analysts said the existing 2217 Model 200, priced at $3,995, is one of the lowest priced LAN-to-SNA interconnect products around. But it also faces some image problems.

"The 2217 is a great concept, but IBM doesn't know how to sell it and users don't know it exists," said Anura Guruge an analyst in New Ipswich, N.H. "For SNA users, it has great simplicity over employing routers in the branch because it employs native SNA and multiprotocol traffic is encapsulated."

Tobacco did not reveal pricing or availability for the new boxes and software. ■

Telemedicine looking sickly

By David Rohde

Washington, D.C.

Industry leaders' doubts about the wisdom of a broad universal-service subsidy for health care providers were stoked last week by the release of a major report on telemedicine.

The Council on Competitiveness report indicates that telemedical applications, such as zipping X-rays from one doctor to another, have been slow to develop and are harder to implement than most policy makers realize.

Top leaders of the council — including Xerox Corp. Chief Executive Officer Paul Allaire and California Institute of Technology President Thomas Everhart — issued a rebuke to the kind of facile information superhighway talk that often touts telemedicine as an imminent breakthrough.

"It is not simply a matter of hooking up all the participants," the council leaders said in a foreword to the report. Numerous regulatory and technology barriers to telemedicine must first be overcome, they said.

For example, except for teleradiology and telepathology, the government does not reimburse for telemedicine consultations, and many insurance companies maintain the same restriction. The Health Care Financing Administration, which administers Medicare, "is not yet convinced of telemedicine's clinical and cost effectiveness," the report says.

The report also notes that standards for electronic health care transactions, data content and formats have been slow to develop. But the biggest problem may be doctors themselves, who are often suspicious of the idea that computers and networks can help their practices. ■

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Second-class postage paid at Framingham, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #0385662 *Network World* (USPS 735-730) is published weekly, except for a single combined issue for the last week in December and the first week in January by Network World, Inc., 161 Worcester Road, Framingham, Mass. 01701-9172

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Are you a Geek god? Find out by taking this self-examination

As I'm sure you all know, "geek" is one of the most frequently used terms in the computer business.

Many people have been classified as geeks: Bill Gates is the richest, Steve Jobs is the survivor, and Jaron Lanier (the virtual reality guru) has the best dreadlocks. Ada Lovelace and Charles Babbage were perhaps the first geeks, and all those 3-year-olds who just got computers for their birthdays are on track to be the next generation of geeks.

But while the top geeks can be easily identified, assessing the average guy's or gal's geekiness can be tricky.

One attempt at quantifying and articulating your geekiness can be found at The Geek Zone (http://krypton.mankato.msus.edu). It supposedly details in an encoded form the dimensions of your geekiness. These geek codes can be found as a signature on the foot of messages from a surprisingly large number of 'Net users.

Mark Gibbs

While this is entertaining if you're a geek, the rest of us can only wonder what it's all about.

Seeing an obvious void in the geekiness assessment market, the Gibbs Institute of Psychometrics and Tap Dancing has gone about filling it. We offer you the following test:

1. Do you have an electronic mail address? If so, score nothing for just one address, five points for up to five addresses and 10 points for more than five. If any of them are not publicly known, you can't count them. If they all wind up pointing to the same mailbox, the same thing goes: no score. Real geeks like to manage multiple mailboxes on different operating systems.

2. If your Mac has a sticker on it that reads: "My other machine is a Cray," score five points. If this doesn't seem funny to you, score a bonus five points.

3. If you think beta-testing every new version of Netscape's software is fun, score five points. If you actually report all of the bugs you find and win one of those prizes, score another five points.

4. If you think ATM is an interesting chat-up topic, score five points. If you have actually tried to use it, score 10 points instead (you certainly didn't score anything else).

5. If you can say "Integrated Digital Services Network" after four beers, score five points. If you can also explain what it is and why anyone should care about it, score five more.

While the top geeks can be easily identified, assessing the average guy's or gal's geekiness can be tricky.

6. If you can't work without a bottomless coffee pot, score five points. If you can drink 10-hour-old coffee, score five more.

7. If your favorite late-night snack is Twinkies, score five points. If you prefer to wash it down with Jolt, score another five.

8. If you own a Newton and like it, score five points. Score another five if you have been known to take meeting notes on it.

9. If you absent-mindedly grope for the mouse when you want to change TV channels, score five points. If you actually find a mouse and manage to change channels, score an extra five.

10. If you can spend more than one hour detailing what was technically wrong with "Johnny Mnemonic," score five points. Score a bonus five points if you think Keanu Reeves is a good actor.

So how did you do? If you scored 25 or less, you're not really a geek at all. You might be a nerd, but you won't know until we do a nerd quotient test.

If you scored 30 to 75, you're pretty geeky. You might be a software developer for some big company. You're probably happy with what you do, but given your antisocial tendencies, no one will have the faintest idea. Or care.

If you scored 80 or above, you are definitely a geek. You are probably one of a small handful of people whose VCR doesn't flash "12:00." You are highly employable. Call me. I have a job for you.

Gibbs will be spending a total of just over 24 hours at 30,000 feet this week. Messages at mgibbs@gibbs.com or (800) 622-1108, Ext. 504, will be handled when he lands.

Oh, hubris! Microsoft makes play for Internet guardianship

They say nobody can be so amusingly arrogant as a young man who has just discovered an old idea and thinks of it as his own. And these arrogant folk are happiest when they put perceived challengers in their place — namely, underfoot.

Microsoft's sudden, somewhat late discovery of the Internet has supercharged its resolve to rule this medium the way it dominates PC operating systems.

Dave Buerger

Just as dogs do their natural thing to stake out turf, Microsoft is resorting to familiar habits while rushing to prove its Internet prowess — marketing technical standards that it controls but that do not yet exist.

Last week, for instance, Microsoft and Intel led 122 other vendors to announce a new standard for communicating over the Internet. I am not accusing these companies of arrogance, but as any Yankee-turned-Southerner knows, one can *say* things that have unspoken deeper meaning.

Just as dogs do their natural thing to stake out turf, Microsoft is resorting to familiar habits while rushing to prove its Internet prowess.

Yet in Microsoft's and Intel's case, one struggles to grasp any meaning in the words that were said. Consider the headline of this unnamed pseudo-consortium's press release: "More than 100 leading companies join with Intel and Microsoft to support standards-based communications over the Internet." And don't forget the helpful subheading: "Will help make Internet voice, video and data phone calls commonplace."

Allow me to translate this prose into analogous English. "Leading transportation companies join to support standards-based travel by car over the nation's highway system." Oh, and don't forget the subhead: "Will make trips more commonplace."

Pardon me. I forgot my manners and let deeper meaning speak for itself. Microsoft and friends said their standard — scheduled for delivery later this year (yeah, right) — will make video, voice and data communications "as commonplace as a simple telephone call." They promised to let customers communicate in "new and exciting ways" over the Internet, regardless of computer platform.

Who are they trying to kid? Microsoft is clearly jockeying to rule the interface for the next killer application (integrated voice and video). As for Intel, it's happy to push its proprietary ProShare videoconferencing scheme and any other application that drinks MIPS.

Details of the new "standard" were conspicuously absent from this marketing event. The vendors assured us, however, that the platform will include technical specifications from the International Telecommunications Union and the Internet Engineering Task Force. Those mentioned were T.120 for data conferencing and H.323 for audio- and videoconferencing.

Thank goodness. For a minute, was worried these other international bodies were leading us astra down a path of proprietary specifi cations.

The Intel/Microsoft Consortium's 124-member roster is impressive. But several prominen vendors did not join the consortium, including Apple Computer AT&T, Ericsson, IBM, Intecom/Incite, MCI, National Semiconductor and Siemens Rolm.

Perhaps these vendors don't count. But they do have one unifying claim The Microsoft/Intel gang doesn't und stand synchronous communications. I layman's terms, they say the consortiu members need help with techniques fc moving voice and video over networks.

Users should be wary of Internet newbies who claim sudden leadership. Microsoft is welcome to join the crowd and share ideas. Let's hope, however, that in its aspiration to reign over Internet standards, it does not become dictator.

Buerger is a networking industry consu tant and writer in Atlanta. He can be reac d at dave@buerger.com.

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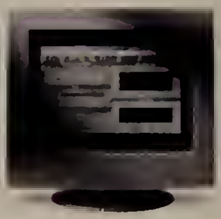

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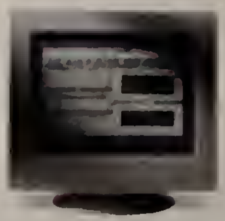

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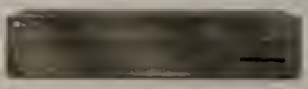

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CONFERENCE: April 1–5, 1996 • EXHIBITION: April 2–4, 1996
Las Vegas Convention Center • Las Vegas, NV

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NEWSPAPER

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Interop DotCom

Interop DotCom is a new Internet product and technology exhibition coinciding with NetWorld+Interop in Las Vegas April 2–4, 1996. Produced by SOFTBANK Expos, the same group that produces NetWorld+Interop, Interop DotCom gives Internet business professionals the vital information they need to purchase and develop Internet solutions for their organizations. ***To guarantee attendees see only the best Internet solutions, exhibiting companies must meet qualifying criteria in order to exhibit.***

- **EXCLUSIVE! Only the top Internet vendors qualify to exhibit!**
- **The best tools & technologies, from Java to new browsers**
- **Tips and tricks of expert Webmasters**
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INTEROP DOTCOM COINCIDES WITH NETWORLD+INTEROP

Location:	Las Vegas Hilton Hotel
Dates:	April 2–4, 1996
Time:	Tuesday, 10am–6pm Wednesday, 10am–6pm Thursday, 10am–4pm

Access the web at www.interop.com for more information

TUESDAY, [illegible]

Bill Gates
Chairman & CEO
Microsoft Corporation

TUESDAY, [illegible]

Bob Frankenberg
CEO
Novell, Inc.

WEDNESDAY, [illegible]

John Gerdelman
President
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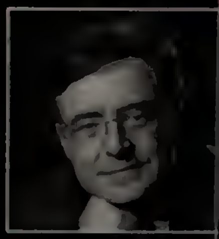
WEDNESDAY, [illegible]

Peter Neumann
Principal Scientist
SRI International



Maks Wuikan
Co-founder
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10 am – 6 pm	10 am – 6 pm	10 am – 4 pm

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